

Collection of

NOVACOM
RESPALDO DE CONFIANZA

V5.0

OLED/LED/LCD TV

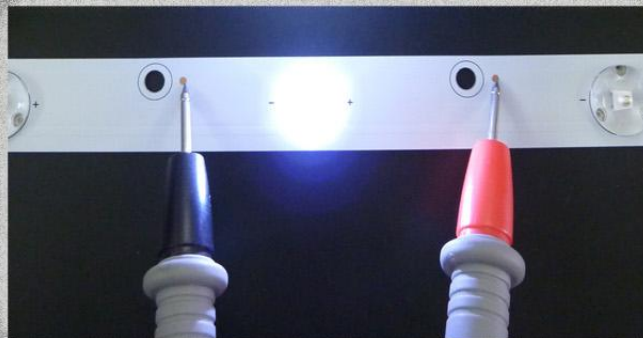
Repair Tips



**2A DC-DC
Step-up Module**

LCDRepairGuide.com

**LED
Driver
Board**



<http://www.LCDRepairGuide.com>

by Kent Liew

55LM6200 Main Board DC Voltages



IC100 **HDCP EEPROM**

| Pin | Value |
|-----|---------------------|
| [1] | n/c |
| [2] | n/c |
| [3] | n/c |
| [4] | Gnd |
| [5] | 3.35V |
| [6] | 3.35V |
| [7] | 3.31V |
| [8] | 3.31V (3.3V_Normal) |

IC104 **NVRAM Memory**

| Pin | Value |
|-----|---------------------|
| [1] | 0V |
| [2] | Gnd |
| [3] | 3.32V |
| [4] | Gnd |
| [5] | 3.32V |
| [6] | 3.32V |
| [7] | Gnd |
| [8] | 3.31V (3.3V_Normal) |

IC501 **DAC_3V3 Regulator**

| Pin | Value |
|-----|-------------------|
| [1] | 5.14V (5V_Normal) |
| [2] | 3.26V |
| [3] | Gnd |

IC2400 **+1.2V_MTK_CORE Regulator**

| Pin | Value |
|-----|-----------------|
| [1] | Gnd |
| [2] | 12.07V (12V In) |
| [3] | Gnd |
| [4] | 0.8V |
| [5] | 0.85V |
| [6] | 3.51V |
| [7] | 1.27V (Out) |
| [8] | 1.27V (Out) |

Q2401 **PWR_On Switch**

| Pin | Value |
|-----|--------------|
| [1] | 3.51V (Out) |
| [2] | 2.83V |
| [3] | 3.5V_ST (In) |

Q2406 **Panel_VCC Driver**

| Pin | Value |
|-----|-------|
| [B] | 0.64V |
| [C] | 0.1V |
| [E] | Gnd |

IC2402 **PWR_Det +12V in**

| Pin | Value |
|-----|-------|
| [1] | Gnd |
| [2] | 3.64V |
| [3] | 3.68V |

IC2403 **+1.5V_DDR Regulator**

| Pin | Value |
|------|----------------------|
| [1] | 3.5V_ST (In) |
| [2] | 3.5V_ST (In) |
| [3] | Gnd |
| [4] | Gnd |
| [5] | Gnd |
| [6] | 0.83V |
| [7] | 0.72V |
| [8] | 1.5V Sound goes Loud |
| [9] | 1.84V |
| [10] | 1.54V (1.5V_DDR) Out |
| [11] | 1.54V (1.5V_DDR) Out |
| [12] | 1.54V (1.5V_DDR) Out |
| [13] | 5.07V |
| [14] | n/c |
| [15] | 3.48V |
| [16] | 3.5V_ST (In) |

IC2404 **(+5V_NORMAL) Regulator**

| Pin | Value |
|-----|-----------------|
| [1] | 3.42V |
| [2] | 0.78V |
| [3] | 5.47V |
| [4] | 5.44V |
| [5] | Gnd |
| [6] | 5.13V |
| [7] | 10.49V |
| [8] | 12.07V (12V In) |

IC2405 **+3.3V_NORMAL Regulator**

| Pin | Value |
|------|-------------------------|
| [1] | 3.33V |
| [2] | 0.77V |
| [3] | 5.49V |
| [4] | 5.46V |
| [5] | Gnd |
| [6] | 5.44V |
| [7] | 3.41V |
| [8] | Gnd |
| [9] | Gnd |
| [10] | 3.32V (3.3V_Normal Out) |
| [11] | 3.32V (3.3V_Normal Out) |
| [12] | 8.74V |
| [13] | 12.07V (12V In) |
| [14] | 12.07V (12V In) |

IC4303 **5V for USB OCP**

| Pin | Value |
|------|-------------|
| [1] | 0V (Gnd) |
| [2] | 5.11V (In) |
| [3] | 5.11V (In) |
| [4] | 0V (Gnd) |
| [5] | 0V |
| [6] | 0V |
| [7] | 0.05V |
| [8] | 5.11V (Out) |
| [9] | 5.11V (Out) |
| [10] | 3.31V |

Silked Screend IC6303

IC4305 **5V for USB Regulator**

| Pin | Value |
|-----|--------------------|
| [1] | 11.08V |
| [2] | 24.61V (24V In) |
| [3] | 3.32V |
| [4] | 1.25V |
| [5] | 0.8V |
| [6] | 0.51V |
| [7] | Gnd |
| [8] | 5.11V (5V_USB) Out |

IC4306 **+1.5V_DDR Regulator**

| Pin | Value |
|------|-----------------|
| [1] | 3.51V |
| [2] | 0.64V |
| [3] | n/c |
| [4] | n/c |
| [5] | 3.29V |
| [6] | 3.28V |
| [7] | 3.29V |
| [8] | 3.29V |
| [9] | 5.0V (Out) |
| [10] | Gnd |
| [11] | Gnd |
| [12] | 5.0V (Out) |
| [13] | 5.0V (In) |
| [14] | 5.0V (In) |
| [15] | 5.0V (In) |
| [16] | 5.0V (In) |
| [17] | 5.0V (In) |
| [18] | |
| [19] | Gnd |
| [20] | Gnd |
| [21] | 12.07V (12V In) |
| [22] | 12.07V (12V In) |
| [23] | Gnd |
| [24] | 6.25V |

IC6503 **+1.8V_TU Regulator**

| Pin | Value |
|-----|--------------------|
| [1] | 0V (Gnd) |
| [2] | 1.8V (1.8V_TU) Out |
| [3] | 3.31V (3.3V_TU) In |

Q2407 **Panel_VCC Switch**

| Pin | Value |
|-----|--------|
| [G] | 1.9V |
| [S] | 12.07V |
| [D] | 12.07V |

Q3001 **CEC FET**

| Pin | Value |
|-----|-------|
| [G] | 3.51V |
| [S] | 3.48V |
| [D] | 3.47V |

Q3300 **Q3301** **Q3302** **Q3303** **HDMI 1-4 Hot Swap**

| Pin | Value |
|-----|-------|
| B | 0V |
| C | 0V |
| E | Gnd |

Q5400 **Amp Mute Driver**

| Pin | Value |
|-----|----------------------|
| [B] | 0V (Amp_Mute) Ctl |
| [C] | 3.27V (Amp_Mute) Out |
| [E] | Gnd |

Q6500 **TUNER_SIF Buffer**

| Pin | Value |
|-----|----------|
| [B] | 0.22V |
| [C] | 0V (Gnd) |
| [E] | 0.91V |

Q6501 **Tuner (Analog) Video Buffer**

| Pin | Value |
|-----|----------|
| [B] | 3.61V |
| [C] | 0V (Gnd) |
| [E] | 4.28V |

Q7700 **VGL_FB / VGL Switch**

| Pin | Value |
|-----|-------|
| [B] | 0.67V |
| [C] | 4.67V |
| [E] | 0V |

Q7701 **VGH / VGH_FB Switch**

| Pin | Value |
|-----|--------|
| [B] | 15.91V |
| [C] | 15.63V |
| [E] | 16.6V |

Q7702 **EPI_LOCK6 Drives Q7703**

| Pin | Value |
|-----|----------|
| [B] | 0.77V |
| [C] | 0.02V |
| [E] | 0V (Gnd) |

Q7703 **EPI_LOCK6 Source**

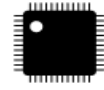
| Pin | Value |
|-----|----------|
| [B] | 0V (Gnd) |
| [C] | 3.31V |
| [E] | 0V (Gnd) |



55LM6200 T-CON Board Component Voltages

U10 DC-to-DC

Panel Power
Level Shifter



| Pin | Pin |
|------------------------------------|--------------------|
| [1] 7.76V (GCLK1) | [15] (-6.97) (VGL) |
| [2] 7.74V (GCLK2) | [16] 27.96V (VGH) |
| [3] 7.75V (GCLK3) | [17] 27.96V (VGH) |
| [4] 7.74V (GCLK4) | [18] 7.65V (V_COM) |
| [5] 7.76V (GCLK5) | [19] 7.65V |
| [6] 7.74V (GCLK6) | [20] 7.62V |
| [7] 2.5V | [21] 16.9V |
| [8] 27.9V (VGH_R) | [22] Gnd |
| [9] (-6.97) (VGH_F) | [23] 3.3V (VCC) |
| [10] *(-6.95V to 27.9V) (VGH_ODD) | [24] 0V |
| [11] *(-6.95V to 27.9V) (VGH_EVEN) | [25] 0V |
| [12] (-6.91) (VST) | [26] 0.7V |
| [13] (-6.88) (GIP_RST) | [27] 1.27V |
| [14] (-6.97) | [28] 3.24V |

* EVERY Second

U11 DC-to-DC

T-CON and Panel Power
DC-to-DC Conv



| Pin | Pin | Pin |
|------------------------|------------------------|------------------------|
| [1] 1.81V | [15] 4.95V | [25] 4.95V |
| [2] 1.86V | [16] 0.53V | [26] 0.53V |
| [3] Gnd | [17] 3.3V | [27] 3.3V |
| [4] 3.3V | [18] 3.3V | [28] 3.3V |
| [5] 1.79V | [19] 4.99V | [29] 4.99V |
| [6] 1.81V | [20] 1.3V | [30] 1.3V |
| [7] Gnd | [21] 16.4V | [31] 16.4V |
| [8] 3.31V (VCC) | [22] 27.94V | [32] 27.94V |
| [9] 3.31V (VCC) | [23] 5.69V | [33] 5.69V |
| [10] 0V | [24] 8.21V | [34] 8.21V |
| [11] 11.7V (Panel_VCC) | [25] (-6.98V) (VGL_FB) | [35] (-6.98V) (VGL_FB) |
| [12] 11.7V (Panel_VCC) | [26] 1.19V | [36] 1.19V |
| [13] 11.7V (Panel_VCC) | [27] 13.86V | [37] 13.86V |
| [14] 11.7V (Panel_VCC) | [28] 12.85V | [38] 12.85V |
| [15] 8.45V (H_VDD) | [29] 10.91V | [39] 10.91V |
| [16] 8.44V (H_VDD_FB) | [30] 6.55V | [40] 6.55V |
| [17] Gnd | [31] 4.6V | [41] 4.6V |
| [18] Gnd | [32] 3.5V | [42] 3.5V |
| [19] Gnd | [33] 7.65V | [43] 7.65V |
| [20] 11.7V (Panel_VCC) | [34] 7.64V | [44] 7.64V |
| [21] 11.7V (Panel_VCC) | [35] 7.63V | [45] 7.63V |
| [22] 16.97V | [36] 7.61V (VCOM_RFB) | [46] 7.61V (VCOM_RFB) |
| [23] 16.97V (VDD) | [37] 1.61V | [47] 1.61V |
| [24] Gnd | [38] Gnd | [48] Gnd |

U5

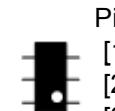
Buffer



| Pin | Pin |
|-----------|------------|
| [1] Gnd | [15] Gnd |
| [2] Gnd | [16] Gnd |
| [3] Gnd | [17] Gnd |
| [4] Gnd | [18] Gnd |
| [5] 3.31V | [19] 3.31V |
| [6] 3.31V | [20] 3.31V |
| [7] 3.31V | [21] 3.31V |
| [8] 3.31V | [22] 3.31V |

Q1

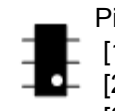
VDD Rectifier



| Pin | Pin |
|-------------------|--------------------|
| [1] 20.2V | [15] 16.38V |
| [2] 16.38V | [16] 16.93V Output |
| [3] 16.93V Output | [17] 12.98V |
| [4] 12.98V | [18] 12.98V |
| [5] 12.98V | [19] 12.95V |
| [6] 12.95V | [20] 12.95V |

Q2

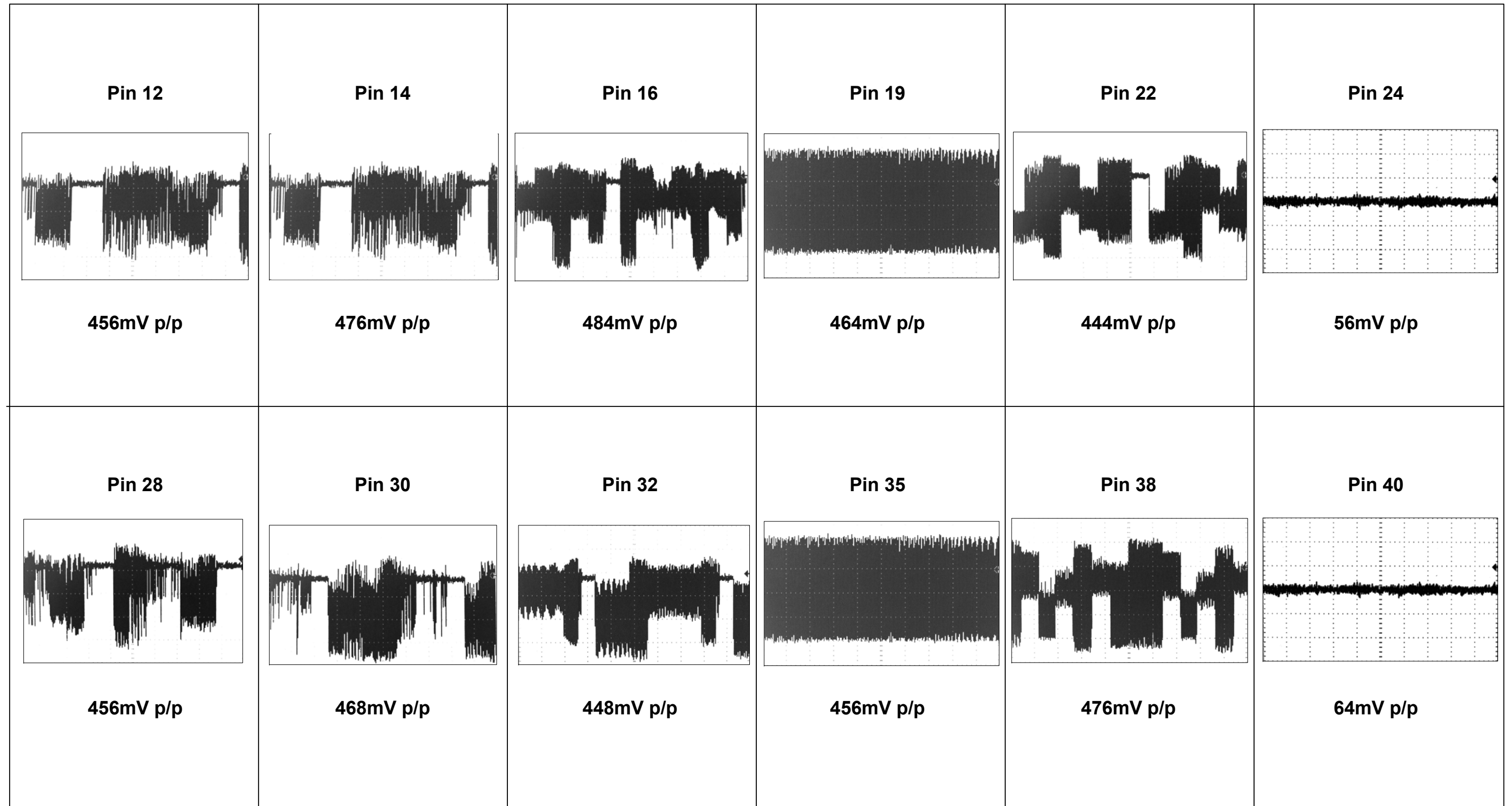
VGL Rectifier



| Pin | Pin |
|------------------|-------------------|
| [1] 0.56V | [15] 1.18V |
| [2] 1.18V | [16] (-2.9V) |
| [3] (-2.9V) | [17] (-7V) Output |
| [4] (-7V) Output | [18] 2.97V |
| [5] 2.97V | [19] 2.97V |
| [6] 2.97V | [20] 2.97V |



55LM6200 P7100 LVDS Connector Video Waveforms



All LVDS signals are taken with SMPTY Color Bar signal input (1080P) Component Input.

All LVDS signals are "Differential Pairs". The ones shown are the "Positive" signal of the pair. The Negative signal looks exactly the same but flipped 180°.

Scope Settings are 100mV per/division, 2.5uSec per/division.

NOVACOM 5LM6700 INTERCONNECT DIAGRAM

Note: If a particular area is exhibiting a dimmer backlight level than other areas or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,

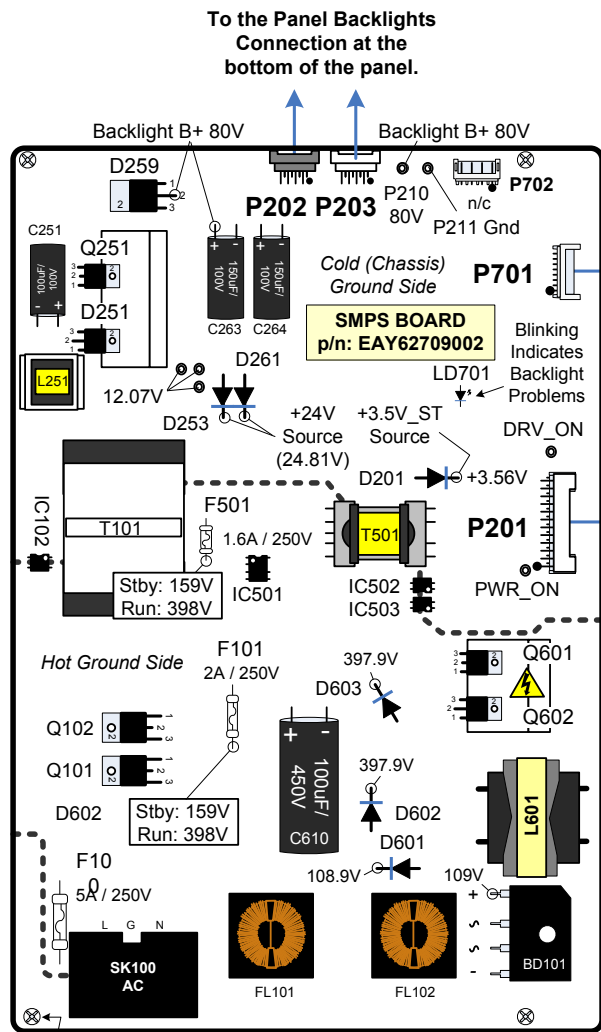
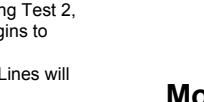
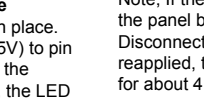
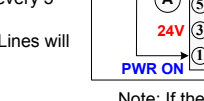
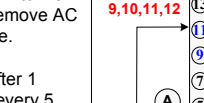
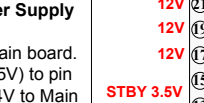
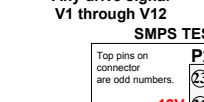
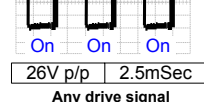
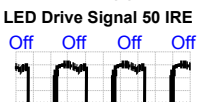
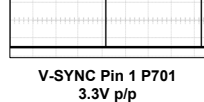
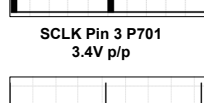
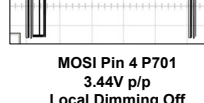
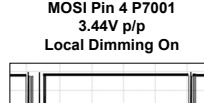
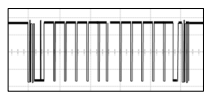
- 1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100% = approx 3V. Follow the P-DIM signal all the way to the SMPS.
- 2nd: Turn off Local Dimming in the Customers Menu or unplug P701 (with power off). If the brightness returns to normal, examine the signals required for Local Dimming. (SIN, V-SYNC and SCLK). Suspect the Main Board.

You can also test each of the 12 blocks functionality by grounding the return path signal (using 220Ω resistor).

LED SINGLE BLOCK TEST (DIM OR DARK PICTURE AREA):
Turn the Brightness, Contrast and Backlights all the way up. Confirm 80V on TP P210. Confirm P-DIM is approx. 3V. Using a 220Ω resistor, jump any of the blocks grounding pin on P202 or P203 (VC1~12) while observing the picture and each block should turn on maximum. (No: Bad Panel, Yes: Bad SMPS).

P202 Black Plug "SMPS Board" To "Panel LEDs"

| Pin | Label | Run | Diode Check |
|-----|-------|--------------|-------------|
| 1 | VC-6 | *1.44V~24.4V | OL |
| 2 | VC-5 | *1.44V~24.4V | OL |
| 3 | VC-4 | *1.44V~24.4V | OL |
| 4 | VC-3 | *1.44V~24.4V | OL |
| 5 | VC-2 | *1.44V~24.4V | OL |
| 6 | VC-1 | *1.44V~24.4V | OL |
| 7 | n/c | n/c | OL |
| 8 | LED+ | 81V | OL |



If P202 or P203 is disconnected, the Backlights come on, on the side that is still plugged in. Then the go back off. Error line goes high and LD701 blinks 3 times every 5 seconds.

80V Backlight power. P202 Pin 8 P203 Pin 1

⁽¹⁾ PWM Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.14V to 2.91V.

PWR-ON: Starts 12V, 24V and 62.28V LED Power. No Backlights.

DRV-ON: Starts Backlights LED Power goes to 81.

80V Line: PWR-ON turns on the 80V supply but it will only be 62.28V. Note: A block of LEDs can not be turned on with this voltage. It will increase to 81V when the DRV-ON line goes high.

LD701: Normal Off. Blinking means error. Abnormal Backlight drive and / or feedback. Error line goes high 3.51V. ERROR: Is not used by the Main board.

P701 "SMPS" to P7600 "MAIN Board"

| Pin | Label | Run | Diode |
|-----|---------|-------|-------|
| 1 | VSYNC | 3.53V | OL |
| 2 | SDA | 3.36V | OL |
| 3 | SCL | 3.36V | OL |
| 4 | SIN | 0.16V | OL |
| 5 | GND | Gnd | Gnd |
| 6 | SCLK | 0.09V | OL |
| 7 | N.C. | 0V | OL |
| 8 | REVERSE | 0V | OL |

No Stand-By voltages

P201 "SMPS Board" To P2400 "MAIN Board"

| Pin | Label | STBY | Run | Diode Check |
|-------|--------------------|-------|-------------|-------------|
| 24 | ERROR | 0V | 0V | OL |
| 23 | n/c | 0V | 1.03V | OL |
| 22 | ⁽¹⁾ PWM | 0V | 0.14V~2.91V | OL |
| 21 | 12V | 0V | 12V | 0.49V |
| 20 | n/c | n/c | n/c | n/c |
| 19 | 12V | 0V | 12V | 0.49V |
| 18 | DRV-ON | 0V | 3.52V | n/c |
| 17 | 12V | 0V | 12V | 0.49V |
| 16 | V_Sync | 0V | 0V | OL |
| 13-15 | Gnd | Gnd | Gnd | Gnd |
| 9-12 | 3.5V STBY | 3.54V | 3.56V | 2.64V |
| 5-8 | Gnd | Gnd | Gnd | Gnd |
| 2-4 | 24V | 0V | 24.88V | 1.64V |
| 1 | PWR-ON | 0V | 3.44V | 1.16V |

P4800 Connector "MAIN Board" To J1" Magic Remote

| Pin | Label | STBY | Run | Diode Check |
|-----|-------|------|-------|-------------|
| 1 | 3.3V | 0V | 3.32V | 0.56V |
| 2 | Gnd | Gnd | Gnd | Gnd |
| 3 | RX | 0V | 3.31V | 0.9V |
| 4 | TX | 0V | 3.31V | 1.18V |
| 5 | RESET | 0V | 0.14V | 1.18V |
| 6 | DC | 0V | 0V | OL |
| 7 | DD | 0V | 0V | OL |
| 8 | Gnd | Gnd | Gnd | Gnd |

For DC voltages for Main board components see Page 2 of the Interconnect diagram.

P2400 "MAIN Board" To P201 "SMPS Board"

| Pin | Diode |
|-------|-------|
| 1 | OL |
| 2-4 | OL |
| 5-8 | Gnd |
| 9-12 | 2.3V |
| 13-15 | Gnd |
| 16 | OL |
| 18 | 1.62V |
| 19 | OL |
| 20 | OL |
| 21 | OL |
| 22 | 0.73V |
| 23 | 0.69V |
| 24 | OL |

P7600 "MAIN Board" to P701 "SMPS Board"

| Pin | Diode |
|-----|-------|
| 1 | OL |
| 2 | n/c |
| 3 | 1.12V |
| 4 | Gnd |
| 5 | 1.02V |
| 6 | 1.76V |
| 7 | 1.76V |
| 8 | 1.09V |

Main Boards used:

UA.AUMWLJR
p/n: EBR75087801,
p/n: EBT62095802
p/n: EBT62095803,
p/n: EBT62095809,
p/n: EBU61762824,
p/n: EBU61762826

UA.AUMWLJR and UA.AUMZLUR:
p/n: EBT61976122,
p/n: EBU61762829,
p/n: EBU61762825,

UA.AUMZLUR:
p/n: EBT61976121,

UA.AUMZLHR,
p/n: EBT61976127

p/n: EAT61613401

"Key Board" To J2 "Front IR"

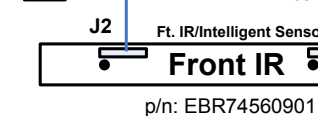
| Label | STBY | Run |
|-------|-------|-------|
| Key 1 | 3.52V | 3.52V |
| Gnd | Gnd | Gnd |
| Key 2 | 3.52V | 3.52V |
| Gnd | Gnd | Gnd |

SMPS TEST 1: To Force Power Supply On without the Main Board.
Disconnect the P2400 on the Main board. (A) Jump pin 9, 10, 11 or 12 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 62.28V Backlight power. Remove AC power. No Backlights at this time.

During Test 1, the Error LED (after 1 minute) begins to blink 5 times every 5 seconds. Any of the LED Ground Return Lines will be (9.25V).

SMPS TEST 2: (Turning on the Backlights) Leave 1st jumper in place. (B) Jump pin 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now jump to 78.4V. During Test 2, the Error LED (immediately) begins to blink 6 times every 5 seconds. Any of the LED Ground Return Lines will be (1.05V).

Tact Switch Keys
p/n: EBR74785904



p/n: EBR74561201



Video (TXA) pins 19, 20, 27, 28
Video Clock (TXACKL) 23, 24

PANEL p/n: AFB73410002
p/n: EAJ62109301
p/n: EAJ62114401

Video Signal Levels: p/p:
Approx: 500mV

P4102 "MAIN Board" To J1 "IR Board"

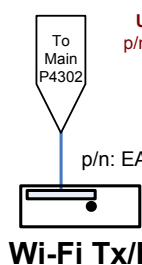
| Pin | Label | STBY | Run | Diode |
|-----|---------|-------|-------|-------|
| 1 | SCL | 3.57V | 3.55V | OL |
| 2 | SDA | 3.57V | 3.55V | OL |
| 3 | Gnd | Gnd | Gnd | Gnd |
| 4 | KEY 1 | 3.56V | 3.55V | OL |
| 5 | KEY 2 | 3.56V | 3.55V | OL |
| 6 | 3.5V_ST | 3.57V | 3.55V | 2.3V |
| 7 | Gnd | Gnd | Gnd | Gnd |
| 8 | LED_R | 1.57V | 0V | OL |
| 9 | IR | 3.52V | 3.5V | OL |
| 10 | Gnd | Gnd | Gnd | Gnd |

P4800 "MAIN Board" To J1 "MAGIC Remote"

| Pin | Label | STBY | Run | Diode |
|-----|-------|------|-------|-------|
| 1 | 3.3V | 0V | 3.32V | 0.56V |
| 2 | Gnd | Gnd | Gnd | Gnd |
| 3 | RX | 0V | 3.31V | 0.9V |
| 4 | TX | 0V | 3.31V | 1.18V |
| 5 | RESET | 0V | 0.14V | 1.18V |
| 6 | DC | 0V | 0V | OL |
| 7 | DD | 0V | 0V | OL |
| 8 | Gnd | Gnd | Gnd | Gnd |

P4301 "MAIN Board" To "Wi-Fi Transmitter"

| Pin | Label | STBY | Run | Diode |
|-----|---------|-------|-------|-------|
| 1 | +5V_USB | 0.25V | 5V | OL |
| 2 | WIFI_DM | 0V | 0.05V | 0.7V |
| 3 | WIFI_DP | 0V | 0.05V | 0.7V |
| 4 | Gnd | Gnd | Gnd | Gnd |



55LM6700 Main Board Component Voltages

| IC7700 Panel Power DC-to-DC Conv | | | |
|-------------------------------------|--------|------|--------|
| Pin | | Pin | |
| [1] | 1.89V | [25] | 4.95V |
| [2] | 1.89V | [26] | 0.52V |
| [3] | 3.4V | [27] | 3.31V |
| [4] | 3.4V | [28] | 3.31V |
| [5] | 1.2V | [29] | 5V |
| [6] | 1.2V | [30] | 1.27V |
| [7] | Gnd | [31] | 1.59V |
| [8] | 3.4V | [32] | 2.8V |
| [9] | 3.4V | [33] | 8.12V |
| [10] | 0V | [34] | 8.12V |
| [11] | 11.75V | [35] | (-5V) |
| [12] | 11.75V | [36] | 0.67V |
| [13] | 11.76V | [37] | 13.56V |
| [14] | 11.75V | [38] | 12.38V |
| [15] | 8.29V | [39] | 10.42V |
| [16] | 8.29V | [40] | 5.97V |
| [17] | Gnd | [41] | 5.95V |
| [18] | Gnd | [42] | 2.85V |
| [19] | Gnd | [43] | 6.7V |
| [20] | 11.71V | [44] | 6.7V |
| [21] | 11.7V | [45] | 6.69V |
| [22] | 14.84V | [46] | 6.69V |
| [23] | 10.6V | [47] | Gnd |
| [24] | Gnd | [48] | Gnd |

| IC7701 Panel Power Level Shifter | | | |
|-------------------------------------|--------------|------|--------|
| Pin | | Pin | |
| [1] | 8.33V | [15] | (-5V) |
| [2] | 8.33V | [16] | 28V |
| [3] | 8.33V | [17] | 28V |
| [4] | 8.33V | [18] | 6.7V |
| [5] | 8.33V | [19] | 6.7V |
| [6] | 8.33V | [20] | 6.7V |
| [7] | 6.21V | [21] | 16.58V |
| [8] | 27.9V | [22] | Gnd |
| [9] | (-5V) | [23] | 3.29V |
| [10] | 27.5V to -5V | [24] | 0V |
| [11] | 27.5V to -5V | [25] | 0V |
| [12] | (-5V) | [26] | 0.07V |
| [13] | (-5V) | [27] | 1.36V |
| [14] | (-4.9V) | [28] | 3.37V |

| IC100 HDCP EPROM | | | |
|---------------------|-------|-----|-------|
| Pin | | Pin | |
| [1] | n/c | [1] | n/c |
| [2] | Gnd | [2] | Gnd |
| [3] | n/c | [3] | n/c |
| [4] | Gnd | [4] | Gnd |
| [5] | 3.35V | [5] | 3.35V |
| [6] | 3.35V | [6] | 3.35V |
| [7] | 3.31V | [7] | 3.31V |
| [8] | 3.31V | [8] | 3.31V |

| IC104 NVRAM Memory | | | |
|-----------------------|-------|-----|-------|
| Pin | | Pin | |
| [1] | 0V | [1] | 0V |
| [2] | Gnd | [2] | Gnd |
| [3] | 3.32V | [3] | 3.32V |
| [4] | Gnd | [4] | Gnd |
| [5] | 3.32V | [5] | 3.32V |
| [6] | 3.32V | [6] | 3.32V |
| [7] | Gnd | [7] | Gnd |
| [8] | 3.31V | [8] | 3.31V |

| IC501 DAC_3V3 Regulator | | | |
|----------------------------|-------|-----|-------|
| Pin | | Pin | |
| [1] | 5.13V | [1] | 5.13V |
| [2] | 3.26V | [2] | 3.26V |
| [3] | Gnd | [3] | Gnd |

| IC2400 +1.2V_MTK_CORE Regulator | | | |
|------------------------------------|--------|-----|--------|
| Pin | | Pin | |
| [1] | Gnd | [1] | Gnd |
| [2] | 11.92V | [2] | 11.92V |
| [3] | Gnd | [3] | Gnd |
| [4] | 0.8V | [4] | 0.8V |
| [5] | 0.85V | [5] | 0.85V |
| [6] | 3.51V | [6] | 3.51V |
| [7] | 1.27V | [7] | 1.27V |
| [8] | 1.27V | [8] | 1.27V |

| Q2401 PWR_On Switch | | | |
|------------------------|-------|-----|-------|
| Pin | | Pin | |
| [1] | 3.51V | [1] | 3.51V |
| [2] | 2.83V | [2] | 2.83V |
| [3] | 3.4V | [3] | 3.4V |

| Q2406 Panel_VCC Driver | | | |
|---------------------------|-------|-----|-------|
| Pin | | Pin | |
| [B] | 0.64V | [B] | 0.64V |
| [C] | 0.1V | [C] | 0.1V |
| [E] | Gnd | [E] | Gnd |

| IC2402 PWR_Det +12V in | | | |
|---------------------------|-------|-----|-------|
| Pin | | Pin | |
| [1] | Gnd | [1] | Gnd |
| [2] | 3.64V | [2] | 3.64V |
| [3] | 3.68V | [3] | 3.68V |

| IC2403 +1.5V_DDR Regulator | | | |
|-------------------------------|----------------------|------|----------------------|
| Pin | | Pin | |
| [1] | 3.5V | [1] | 3.5V |
| [2] | 5.5V | [2] | 5.5V |
| [3] | Gnd | [3] | Gnd |
| [4] | Gnd | [4] | Gnd |
| [5] | Gnd | [5] | Gnd |
| [6] | 0.83V | [6] | 0.83V |
| [7] | 0.72V | [7] | 0.72V |
| [8] | 1.5V Sound goes Loud | [8] | 1.5V Sound goes Loud |
| [9] | 1.84V | [9] | 1.84V |
| [10] | 1.54V | [10] | 1.54V |
| [11] | 1.54V | [11] | 1.54V |
| [12] | 1.54V | [12] | 1.54V |
| [13] | 5.07V | [13] | 5.07V |
| [14] | n/c | [14] | n/c |
| [15] | 3.48V | [15] | 3.48V |
| [16] | 3.5V (Vcc In) | [16] | 3.5V (Vcc In) |

| IC2404 (+5V_NORMAL) Regulator | | | |
|----------------------------------|--------|-----|--------|
| Pin | | Pin | |
| [1] | 3.42V | [1] | 3.42V |
| [2] | 0.78V | [2] | 0.78V |
| [3] | 5.47V | [3] | 5.47V |
| [4] | 5.44V | [4] | 5.44V |
| [5] | Gnd | [5] | Gnd |
| [6] | 5.13V | [6] | 5.13V |
| [7] | 10.49V | [7] | 10.49V |
| [8] | 11.81V | [8] | 11.81V |

| IC2405 +3.3V_NORMAL Regulator | | | |
|----------------------------------|--------|------|--------|
| Pin | | Pin | |
| [1] | 3.33V | [1] | 3.33V |
| [2] | 0.77V | [2] | 0.77V |
| [3] | 5.49V | [3] | 5.49V |
| [4] | 5.46V | [4] | 5.46V |
| [5] | Gnd | [5] | Gnd |
| [6] | 5.44V | [6] | 5.44V |
| [7] | 3.41V | [7] | 3.41V |
| [8] | Gnd | [8] | Gnd |
| [9] | Gnd | [9] | Gnd |
| [10] | 3.32V | [10] | 3.32V |
| [11] | 3.32V | [11] | 3.32V |
| [12] | 8.74V | [12] | 8.74V |
| [13] | 11.81V | [13] | 11.81V |
| [14] | 11.81V | [14] | 11.81V |

| IC4303 5V for USB OCP | | | |
|--------------------------|-------------|------|-------------|
| Pin | | Pin | |
| [1] | 0V (Gnd) | [1] | 0V (Gnd) |
| [2] | 5.11V (In) | [2] | 5.11V (In) |
| [3] | 5.11V (In) | [3] | 5.11V (In) |
| [4] | 0V (Gnd) | [4] | 0V (Gnd) |
| [5] | 0V | [5] | 0V |
| [6] | 0V | [6] | 0V |
| [7] | 0.05V | [7] | 0.05V |
| [8] | 5.11V (Out) | [8] | 5.11V (Out) |
| [9] | 5.11V (Out) | [9] | 5.11V (Out) |
| [10] | 3.31V | [10] | 3.31V |

Silked Screend IC6303

| IC4305 5V for USB Regulator | | | |
|--------------------------------|-------------|-----|-------------|
| Pin | | Pin | |
| [1] | 11.08V | [1] | 11.08V |
| [2] | 24.61V | [2] | 24.61V |
| [3] | 3.32V | [3] | 3.32V |
| [4] | 1.25V | [4] | 1.25V |
| [5] | 0.8V | [5] | 0.8V |
| [6] | 0.51V | [6] | 0.51V |
| [7] | Gnd | [7] | Gnd |
| [8] | 5.11V (Out) | [8] | 5.11V (Out) |

| IC6503 +1.8V_TU Regulator | | | |
|------------------------------|------------|-----|------------|
| Pin | | Pin | |
| [1] | 0V (Gnd) | [1] | 0V (Gnd) |
| [2] | 1.8V (Out) | [2] | 1.8V (Out) |
| [3] | 3.33V (In) | [3] | 3.33V (In) |

| Q2407 Panel_VCC Switch | | | |
|---------------------------|--------|-----|--------|
| Pin | | Pin | |
| [G] | 1.9V | [G] | 1.9V |
| [S] | 11.92V | [S] | 11.92V |
| [D] | 11.92V | [D] | 11.92V |

| Q3001 CEC FET | | | |
|------------------|-------|-----|-------|
| Pin | | Pin | |
| [G] | 3.51V | [G] | 3.51V |
| [S] | 3.48V | [S] | 3.48V |
| [D] | 3.47V | [D] | 3.47V |

| Q3300 Q3301 Q3302 Q3303 HDMI 1-4 Hot Swap | | | |
|---|-----|-----|-----|
| Pin | | Pin | |
| B | 0V | B | 0V |
| C | 0V | C | 0V |
| E | Gnd | E | Gnd |

| Q5400 Amp Mute Driver | | | |
|--------------------------|-----|-----|-----|
| Pin | | Pin | |
| [B] | 0V | [B] | 0V |
| [C] | | [C] | |
| [E] | Gnd | [E] | Gnd |

| Q6500 TUNER_SIF Buffer | | | |
|---------------------------|----------|-----|----------|
| Pin | | Pin | |
| [B] | 0.22V | [B] | 0.22V |
| [C] | 0V (Gnd) | [C] | 0V (Gnd) |
| [E] | 0.91V | [E] | 0.91V |

| Q6501 Tuner (Analog) Video Buffer | | | |
|--------------------------------------|----------|-----|----------|
| Pin | | Pin | |
| [B] | 3.61V | [B] | 3.61V |
| [C] | 0V (Gnd) | [C] | 0V (Gnd) |
| [E] | 4.28V | [E] | 4.28V |

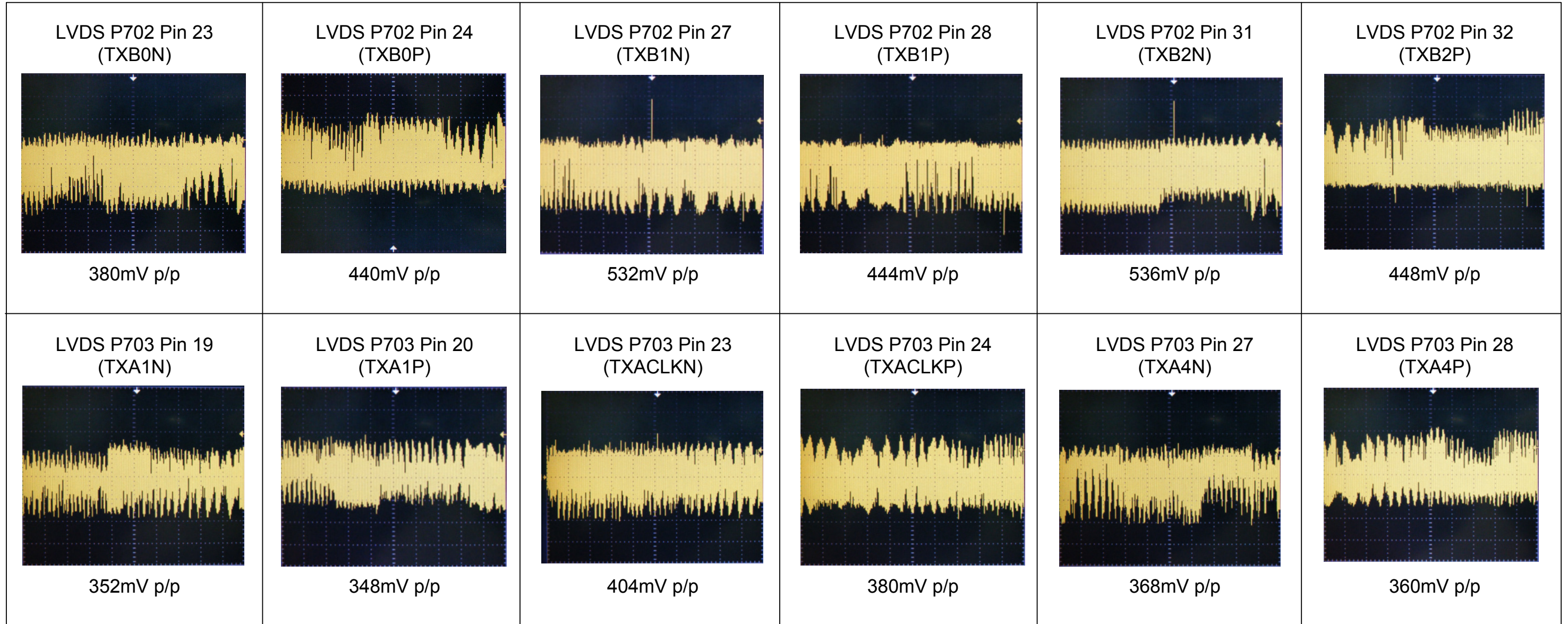
| Q7700 VGL_FB / VGL Switch | | | |
|------------------------------|-------|-----|-------|
| Pin | | Pin | |
| [B] | 0.67V | [B] | 0.67V |
| [C] | 4.67V | [C] | 4.67V |
| [E] | 0V | [E] | 0V |

| Q7701 VGH / VGH_FB Switch | | | |
|------------------------------|--------|-----|--------|
| Pin | | Pin | |
| [B] | 15.91V | [B] | 15.91V |
| [C] | 15.63V | [C] | 15.63V |
| [E] | 16.6V | [E] | 16.6V |

| Q7702 EPI_LOCK6 Drives Q7703 | | | |
|---------------------------------|----------|-----|----------|
| Pin | | Pin | |
| [B] | 0.77V | [B] | 0.77V |
| [C] | 0.02V | [C] | 0.02V |
| [E] | 0V (Gnd) | [E] | 0V (Gnd) |

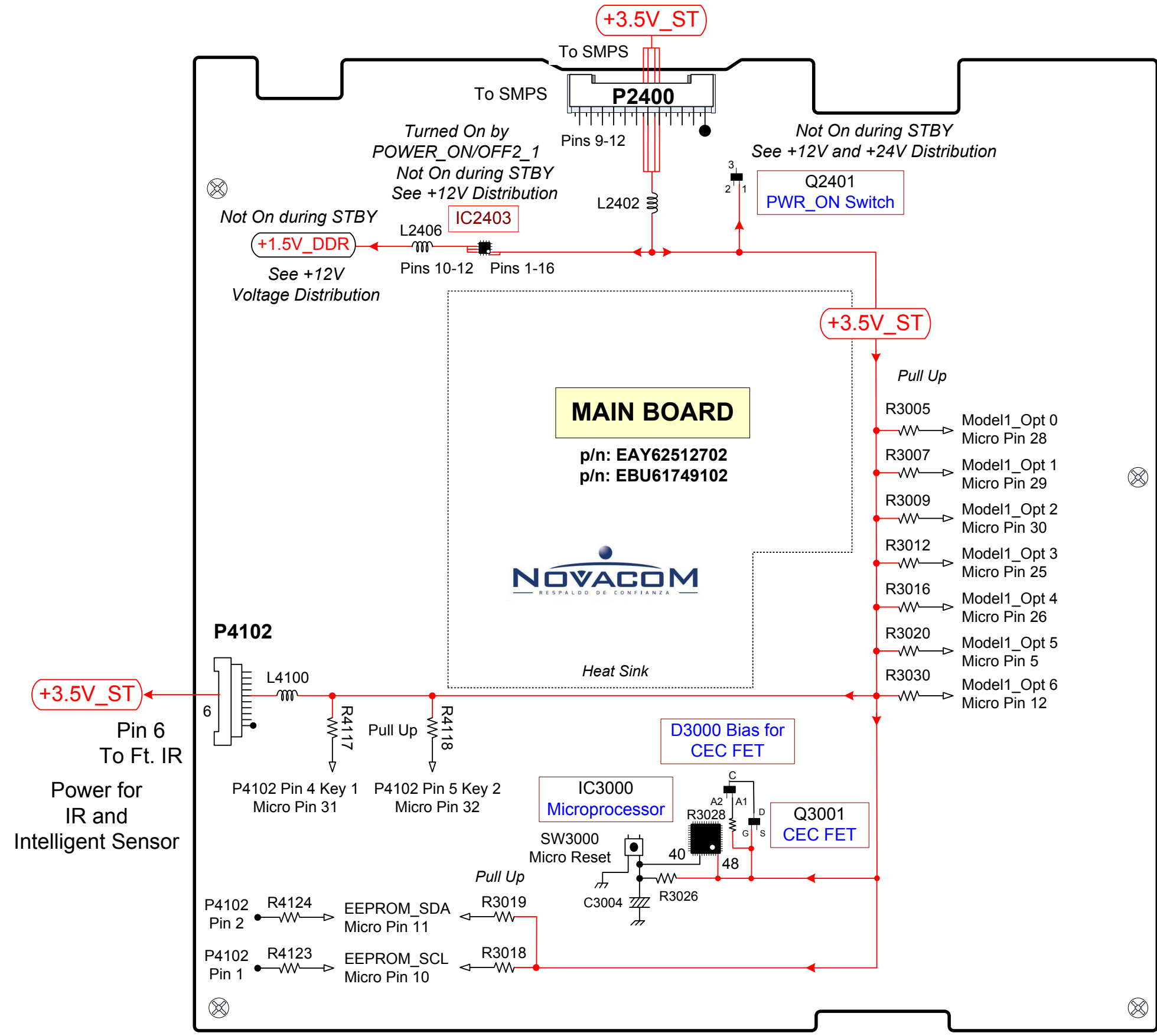
| Q7703 EPI_LOCK6 Source | | | |
|---------------------------|----------|-----|----------|
| Pin | | Pin | |
| [B] | 0V (Gnd) | [B] | 0V (Gnd) |
| [C] | 3.31V | [C] | 3.31V |
| [E] | 0V (Gnd) | [E] | 0V (Gnd) |

55LM6700 LVDS P7702 and P7703 Video Waveforms



SMPTE Color Bar input signal (Component)
All signals taken at 2.5uSec per/sec / 100mV per/div

55LM6700 Main Board (+3.5V_ST) Voltage Distribution



55LM6700 Main Board (+12V) Voltage Distribution

P7703

VGH_R (IC7701 pin 8) to P7703 pin 42 (28V)
VGH_F (IC7701 pin 9) to P7703 pin 41 (-5V)
VGH_ODD (IC7701 pin 10) to P7703 pin 40 (toggles between -5V and 28V)
VGH_EVEN (IC7701 pin 11) to P7703 pin 39 (toggles between -5V and 28V)
VGL_I (IC7701 pin 1) → R7740 to P7703 pin 38 (-5V)
VST (IC7701 pin 12) to P7703 pin 37 (1.4V)
VCOM (IC7701 pin 18) to P7703 pin 34 (6.68V)
VDD (IC7701 pin 23) to P7703 pin 31, 32 (16.58V)
H_VDD (IC7701 pin 16) to P7703 pin 30 (8.29V)
VCC18V (IC7701 pin 1) to P7703 pin 17 (1.8V)

P7702

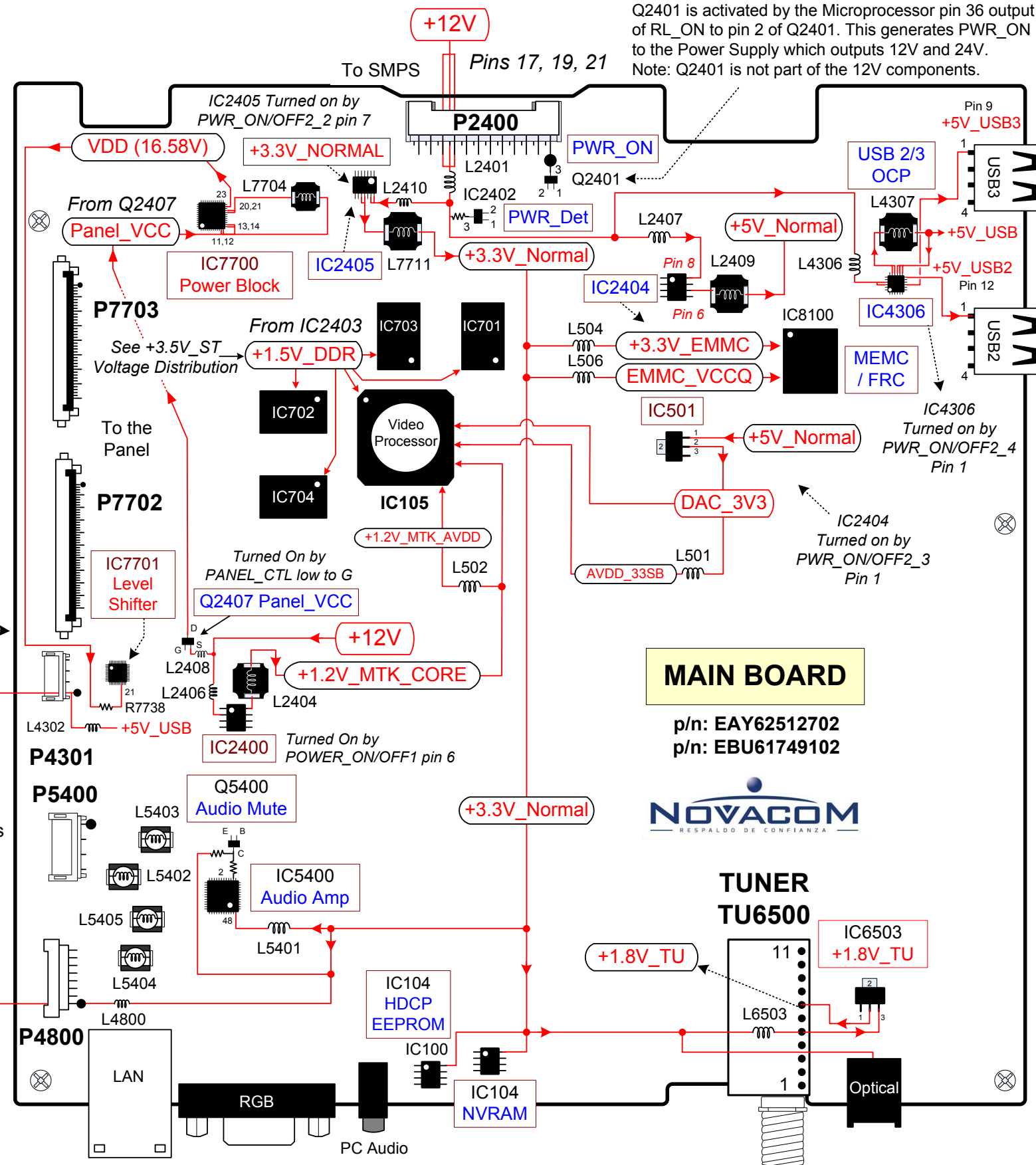
VGH_R (IC7701 pin 8) to P7703 pin 9 (28V)
VGH_F (IC7701 pin 9) to P7703 pin 10 (-5V)
VGH_ODD (IC7701 pin 10) to P7703 pin 11 (toggles between -5V and 28V)
VGH_EVEN (IC7701 pin 11) to P7703 pin 12 (toggles between -5V and 28V)
VGL_I (IC7701 pin 1) → R7740 to P7703 pin 13 (-5V)
VST (IC7701 pin 12) to P7703 pin 14 (1.4V)
VCOM (IC7701 pin 18) to P7703 pin 17 (6.68V)
VDD (IC7701 pin 23) to P7703 pin 19, 20 (16.58V)
H_VDD (IC7701 pin 16) to P7703 pin 21 (8.29V)
VCC18V (IC7701 pin 1) to P7703 pin 34 (1.8V)

Q2407 activated by the Microprocessor pin 4 output of Panel_CTL (Low) to Gate of Q2407 Generating Panel_VCC turning on DC-to-DC converters for the T-CON section and the Panel.

Pin 6
 To Wireless Tx/Rx
+5V_USB

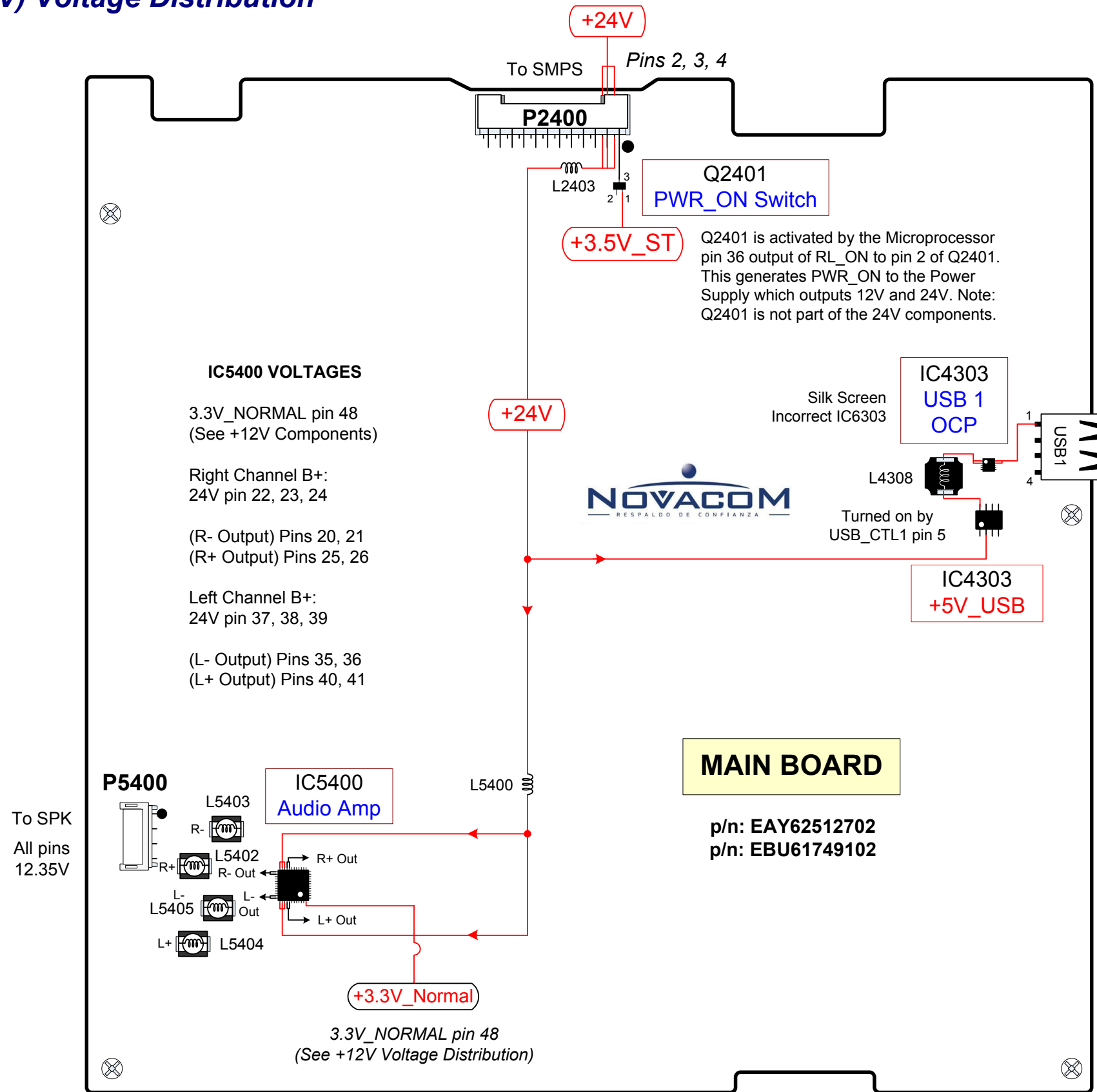
The Audio Amp IC5400 also uses 24V, (see +24V Distribution).

Pin 1
 To Motion Tx/Rx
+3.3V_Normal



Q2401 is activated by the Microprocessor pin 36 output of RL_ON to pin 2 of Q2401. This generates PWR_ON to the Power Supply which outputs 12V and 24V. Note: Q2401 is not part of the 12V components.

55LM6700 Main Board (+24V) Voltage Distribution



55LM8600 INTERCONNECT DIAGRAM

Note: If a particular area is exhibiting a dimmer backlight level than other areas or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,
 1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100% = 3.18V. Follow the P-DIM signal all the way to the SMPS.
 2nd: Turn off Local Dimming in the Customers Menu or unplug P701 (with power off). If the brightness returns to normal, examine the signals required for Local Dimming. (SIN, V-SYNC and SCLK). Suspect the Main Board.

LED SINGLE BLOCK TEST (DIM OR DARK PICTURE AREA):
 Turn the Brightness, Contrast and Backlights all the way up. Confirm 81V TP210. Confirm P-DIM is approx. 3V. Using a 220Ω resistor, jump any of the blocks grounding pin on P202 or P203 (V1~12) while observing the picture and each block should turn on maximum.

P202 Black Plug "SMPS" To "Panel LEDs"

| Pin | Label | Run | Diode Check |
|-----|-------|------------|-------------|
| 1 | VC-6 | *2.89V~26V | OL |
| 2 | VC-5 | *2.89V~26V | OL |
| 3 | VC-4 | *2.89V~26V | OL |
| 4 | VC-3 | *2.89V~26V | OL |
| 5 | VC-2 | *2.89V~26V | OL |
| 6 | VC-1 | *2.89V~26V | OL |
| 7 | n/c | n/c | OL |
| 8 | LED+ | 81V | OL |

*White to Black screen

P203 White Plug "SMPS" To "Panel LEDs"

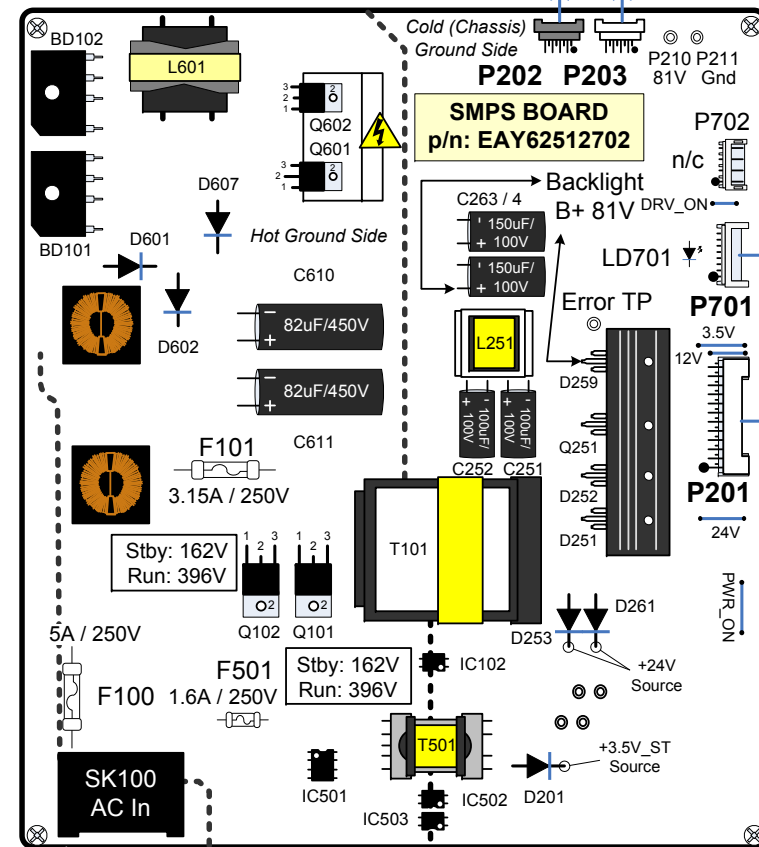
| Pin | Label | Run | Diode Check |
|-----|-------|------------|-------------|
| 1 | LED+ | 81V | OL |
| 2 | n/c | n/c | OL |
| 3 | VC-12 | *2.89V~26V | OL |
| 4 | VC-11 | *2.89V~26V | OL |
| 5 | VC-10 | *2.89V~26V | OL |
| 6 | VC-9 | *2.89V~26V | OL |
| 7 | VC-8 | *2.89V~26V | OL |
| 8 | VC-7 | *2.89V~26V | OL |

*White to Black screen

P701 "SMPS" to P7600 "MAIN Board"

| Pin | Label | Run | Diode | Pin | Label | Run | Diode |
|-----|-----------|-------|-------|-----|-------|-------|-------|
| 1 | L/DIM0_VS | 0V | OL | 5 | GND | Gnd | Gnd |
| 2 | SDA | 3.48V | OL | 6 | SCLK | 0.14V | OL |
| 3 | SCL | 3.48V | OL | 7 | N.C. | n/c | OL |
| 4 | MOSI | 3.21V | OL | 8 | N.C. | n/c | OL |

No Stand-By voltages
 To the Panel Backlights



(1) PWM Pin 22 can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.15V to 3.18V.

PWR-ON: Starts 12V, 24V and 56.3V LED Power. No Backlights.

DRV-ON: Starts Backlights LED Power goes to 81.

LD701: Normal Off. Blinking means error. Abnormal Backlight drive and / or feedback.

ERROR: Is grounded by the Main board and not used. The Error TP is connected to this line, so it is also ground.

T-CON KEY VOLTAGES
 VCC_18 (1.8V) IC500 pin 1
 H_VDD (8.48V) IC500 pin 15
 VDD (16.92V) IC500 pin 23
 VST (-5V) IC501 pin 12
 VGH_EVEN *(-5V to 28V) IC500 pin 11
 VGH_ODD *(-5V to 28V) IC500 pin 10

See page 3 and 4 for additional voltages. See P601 and P602 for pin voltages.

DC Voltages to the Panel developed on the T-CON

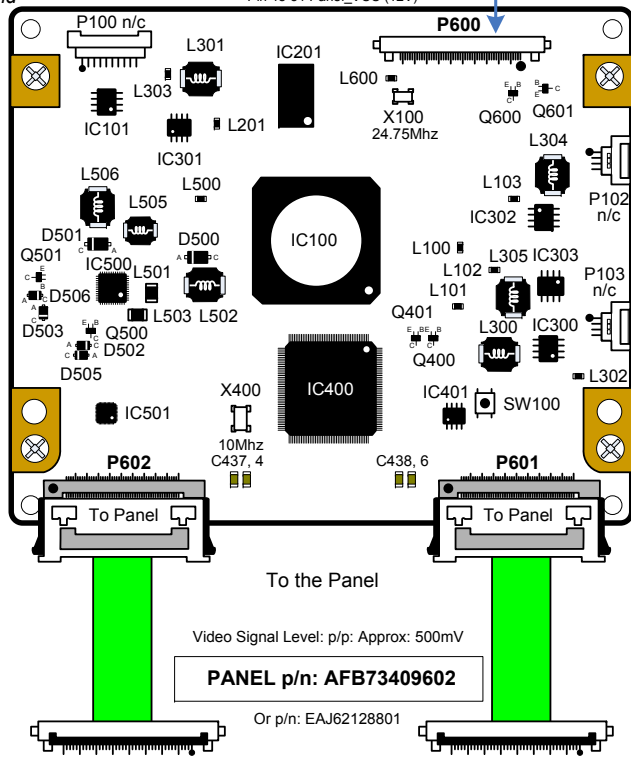
Output from P602 Output from P601

| | |
|-------------------------------|-------------------------------|
| Pin 17 VCC_18 (1.8V) | Pin 34 VCC_18 (1.8V) |
| Pin 30 H_VDD (8.48V) | Pin 21 H_VDD (8.48V) |
| Pin 31, 32 VDD (16.92V) | Pin 19, 20 VDD (16.92V) |
| Pin 37 VST (-5V) | Pin 14 VST (-5V) |
| Pin 39 VGH_EVEN *(-5V to 28V) | Pin 12 VGH_EVEN *(-5V to 28V) |
| Pin 40 VGH_ODD *(-5V to 28V) | Pin 11 VGH_ODD *(-5V to 28V) |

*Changes once a second.

LOGO Board

p/n: EBR75450201

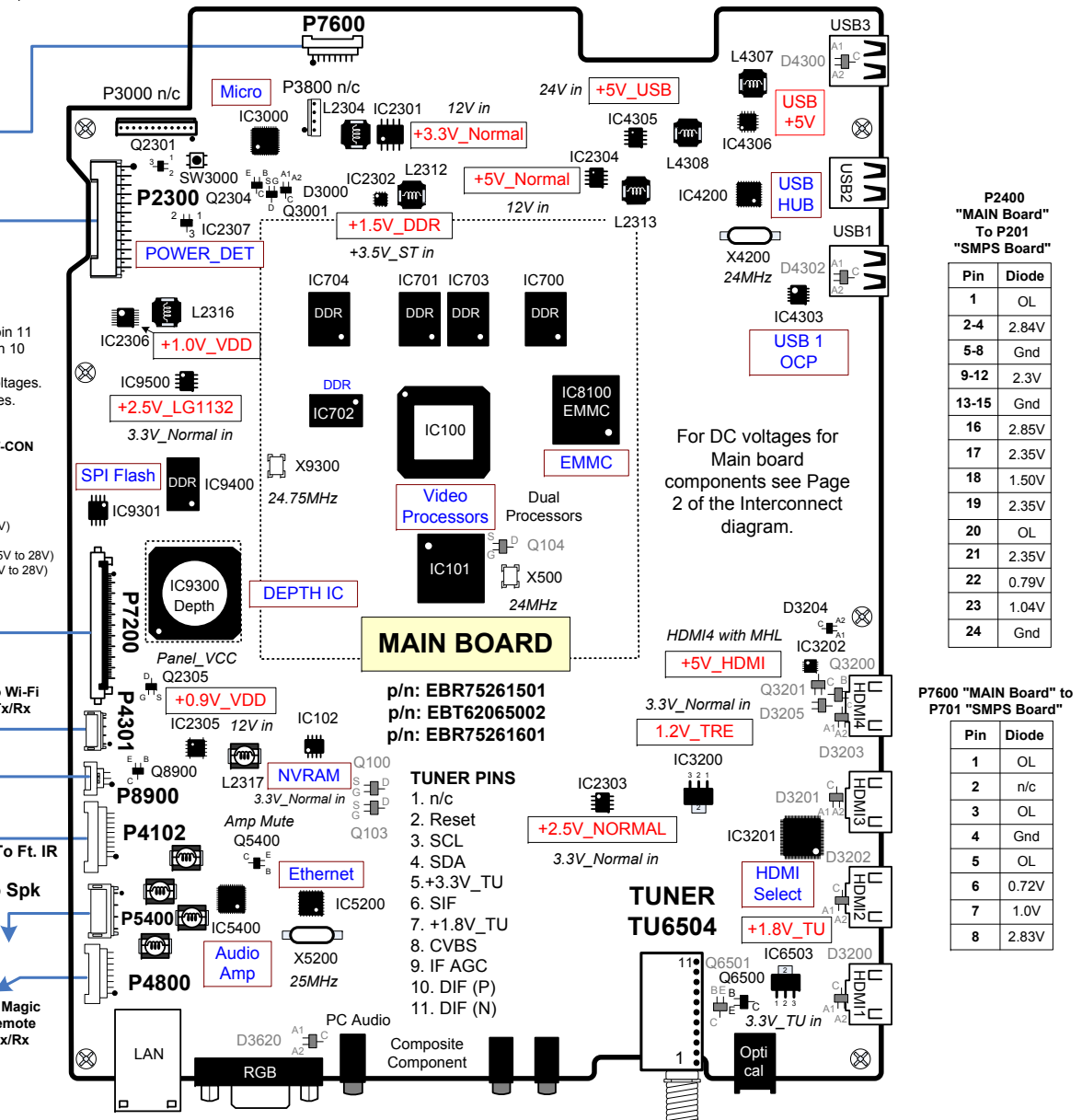


P201 Connector "SMPS Board" To P2300 "MAIN Board"

| Pin | Label | STBY | Run | Diode Check |
|-------|-------------|-------|-------------|-------------|
| 24 | Error | Gnd | Gnd | Gnd |
| 23 | n/c | n/c | n/c | OL |
| 22 | P-DIM | 0V | 0.15V~3.18V | OL |
| 21 | 12V | 0V | 12.1V | 0.49V |
| 20 | n/c | n/c | n/c | n/c |
| 19 | 12V | 0V | 12.1V | 0.49V |
| 18 | DRV-ON | 0V | 3.46V | OL |
| 17 | 12V | 0V | 12.1V | 0.49V |
| 16 | n/c | n/c | n/c | OL |
| 13-15 | Gnd | Gnd | Gnd | Gnd |
| 9-12 | 3.5V (STBY) | 3.55V | 3.50V | OL |
| 5-8 | Gnd | Gnd | Gnd | Gnd |
| 2-4 | 24V | 0V | 24.93V | 1.10V |
| 1 | PWR-ON | 0V | 3.37V | 1.17V |

P4800 Connector "MAIN Board" To J1 "Magic Remote"

| Pin | Label | STBY | Run | Diode Check |
|-----|-------|------|-------|-------------|
| 1 | 3.3V | 0V | 3.32V | 0.55V |
| 2 | Gnd | Gnd | Gnd | Gnd |
| 3 | RX | 0V | 3.31V | 0.88V |
| 4 | TX | 0V | 3.30V | 1.17V |
| 5 | RESET | 0V | 3.26V | 1.17V |
| 6 | DC | 0V | 0V | 0.87V |
| 7 | DD | 0V | 0V | OL |
| 8 | Gnd | Gnd | Gnd | Gnd |



P2400 "MAIN Board" To P201 "SMPS Board"

| Pin | Diode |
|-------|-------|
| 1 | OL |
| 2-4 | 2.84V |
| 5-8 | Gnd |
| 9-12 | 2.3V |
| 13-15 | Gnd |
| 16 | 2.85V |
| 17 | 2.35V |
| 18 | 1.50V |
| 19 | 2.35V |
| 20 | OL |
| 21 | 2.35V |
| 22 | 0.79V |
| 23 | 1.04V |
| 24 | Gnd |

P7600 "MAIN Board" to P701 "SMPS Board"

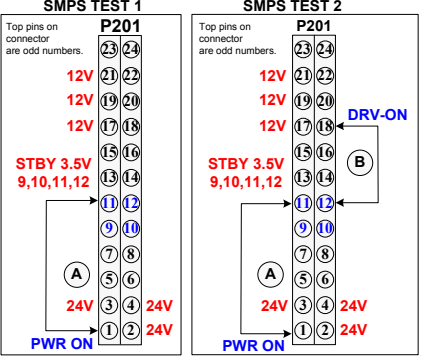
| Pin | Diode |
|-----|-------|
| 1 | OL |
| 2 | n/c |
| 3 | OL |
| 4 | Gnd |
| 5 | OL |
| 6 | 0.72V |
| 7 | 1.0V |
| 8 | 2.83V |

"Key Board" To J2 "Front IR"

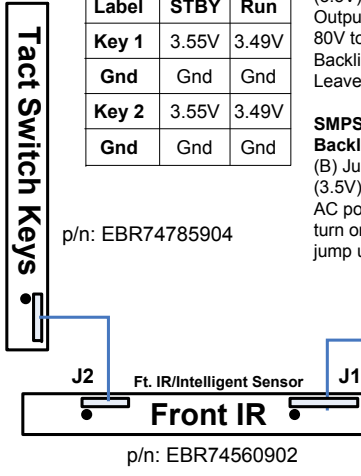
| Label | STBY | Run |
|-------|-------|-------|
| Key 1 | 3.55V | 3.49V |
| Gnd | Gnd | Gnd |
| Key 2 | 3.55V | 3.49V |
| Gnd | Gnd | Gnd |

SMPS TEST 1: Force Power Supply On.
 Disconnect P2300 on Main board. (A) Jump pins 9, 10, 11 or 12 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 80V to Backlights reads 56.3V. No Backlights. Remove AC power. Leave the jumper in place.

SMPS TEST 2: Force the Backlights On.
 (B) Jump pins 9, 10, 11 or 12 (3.5V) to pin 18 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now jump up to 81V.



Note: If there is a problem with a load from the panel backlights, you can remove AC and Disconnect either P202 or P203. When AC is reapplied, the Backlight LEDs should turn on for about 4 seconds and then shut off.



P4102 "MAIN Board" To J1 "IR Board"

| Pin | Label | STBY | Run | Diode |
|-----|---------|-------|-------|-------|
| 1 | SCL | 3.55V | 3.49V | OL |
| 2 | SDA | 3.55V | 3.49V | OL |
| 3 | Gnd | Gnd | Gnd | Gnd |
| 4 | KEY 1 | 3.55V | 3.49V | OL |
| 5 | KEY 2 | 3.55V | 3.49V | OL |
| 6 | 3.5V_ST | 3.55V | 3.49V | 2.3V |
| 7 | Gnd | Gnd | Gnd | Gnd |
| 8 | LED_R | 1.54V | 0V | OL |
| 9 | IR | 3.51V | 3.46V | OL |
| 10 | Gnd | Gnd | Gnd | Gnd |

P4800 "MAIN Board" To J1 "MAGIC Remote"

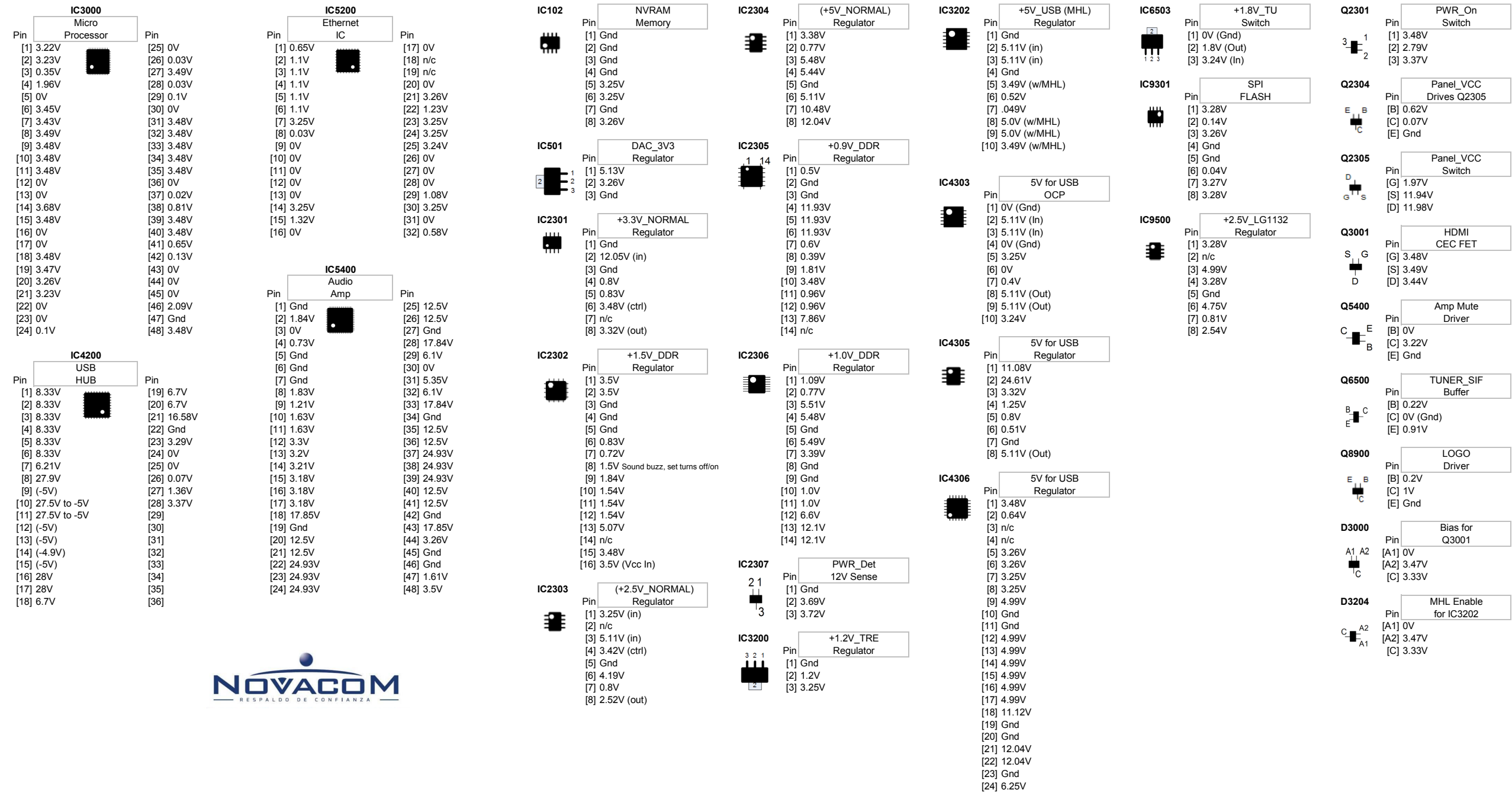
| Pin | Label | STBY | Run | Diode |
|-----|-------|------|-------|-------|
| 1 | 3.3V | 0V | 3.24V | 0.57V |
| 2 | Gnd | Gnd | Gnd | Gnd |
| 3 | RX | 0V | 3.24V | 1.10V |
| 4 | TX | 0V | 3.26V | 1.10V |
| 5 | RESET | 0V | 3.26V | 1.10V |
| 6 | DC | 0V | 0V | 0.79V |
| 7 | DD | 0V | 0V | OL |
| 8 | Gnd | Gnd | Gnd | Gnd |

P4301 "MAIN Board" To "Wi-Fi Transmitter"

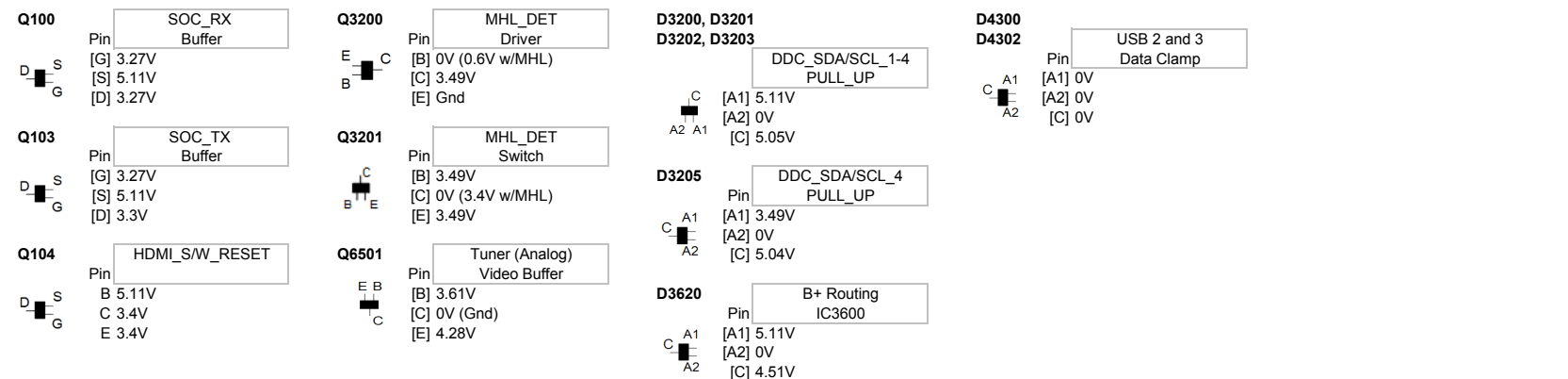
| Pin | Label | STBY | Run | Diode |
|-----|---------|-------|-------|-------|
| 1 | +5V_USB | 0.05V | 4.99V | 2.53V |
| 2 | WIFI_DM | 0V | 0.05V | 1.34V |
| 3 | WIFI_DP | 0V | 0.05V | 1.34V |
| 4 | Gnd | Gnd | Gnd | Gnd |




55LM8600 Main Board (Front Side) Component Voltages





55LM8600 Main Board (Back Side) Component Voltages




55LM8600 T-CON (TFT Controller) Component Layout


IC101

 1) 3.29V
 2) 0.13V
 3) 0V
 4) Gnd
 5) 0V
 6) 0V
 7) 3.28V
 8) 3.28V


IC300

 1) 11.32V
 2) 0.78V
 3) 5.46V
 4) 5.43V
 5) Gnd
 6) 1.81V
 7) 7.2V
 8) 11.64V


IC301

 1) 3.2V
 2) 0.77V
 3) 3.44V
 4) 3.4V
 5) Gnd
 6) 1.52V
 7) 6.89V
 8) 11.65V


IC302

 1) Gnd
 2) 11.64V
 3) Gnd
 4) 0.8V
 5) 0.75V
 6) 3/22V
 7) 1V
 8) 1V





IC303

 1) 11.32V
 2) 0.77V
 3) 5.44V
 4) 5.4V
 5) Gnd
 6) 3.28V
 7) 8.64V
 8) 11.64V


IC401

 1) Gnd
 2) Gnd
 3) Gnd
 4) Gnd
 5) 3.31V
 6) 3.31V
 7) 3.3V
 8) 3.31V


Q400

 B) 3.26V
 E) 3.28V
 C) 3.31V


Q401

 B) 0V
 E) 3.28V
 C) 3.31V

Q500

 B) 0.25V
 E) Gnd
 C) 4.53V


Q501

 B) 16.25V
 E) 16.93V
 C) 13.13V

Q600

 B) 3.28V
 E) 3.28V
 C) 3.29V


Q601

 B) 3.28V
 E) 3.28V
 C) 3.29V


DC-DC Conv **IC500** On T-CON

 1) 1.8V
 2) 1.81V
 3) 3.27V
 4) 3.31V
 5) 1.01V
 6) 1.03V
 7) Gnd
 8) 3.32V
 9) 3.32V
 10) n/c
 11) 11.62V
 12) 11.62V
 13) 11.02V
 14) 11.62V
 15) 8.48V
 16) 8.48V
 17) Gnd
 18) Gnd
 19) Gnd
 20) 11.6V
 21) 11.6V
 22) 16.94V
 23) 16.93V
 24) Gnd


25) 4.96V
 26) 0.5V
 27) 3.28V
 28) 3.28V
 29) 4.99V
 30) 1.41V
 31) 16.28V
 32) 27.96V
 33) 8.2V
 34) 3.62V
 35) (-5.08V)
 36) 0.25V
 37) 13.85V
 38) 12.83V
 39) 10.9V
 40) 6.54V
 41) 4.59V
 42) 3.5V
 43) 7.57V
 44) 7.54V
 45) 7.55V
 46) 7.5V
 47) 1.97V
 48) Gnd


DC-DC Conv **IC501** On T-CON

 1) 6.04V
 2) 6.04V
 3) 6.05V
 4) 6.04V
 5) 6.04V
 6) 6.04V
 7) 5.08V
 8) 27.93V
 9) (-5V)
 10) 27.9V to (-5V)
 11) 27.9V to (-5V)
 12) (-5V)
 13) 0V
 14) (-5.08V)


15) (-5.08V)
 16) (-5.08V)
 17) 27.96V
 18) 27.96V
 19) 7.57V
 20) 7.54V
21) 16.92V
 22) Gnd
 23) 3.2V
 24) 0V
 25) 0V
 26) 0.06V
 27) 0V
 28) 2.71V


L100

 1) 1.8V
 2) 1.8V


L101

 1) 1.8V
 2) 1.8V


L102

 1) 3.28V
 2) 3.28V


L103

 1) 0.95V
 2) 0.97V


L201

 1) 1.51V
 2) 1.51V


L302

 1) 11.67V
 2) 11.67V


L303

 1) 11.66V
 2) 11.66V

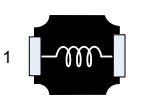
L307

 1) 1.8V
 2) 1.8V

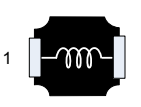
L500

 1) 11.64V
 2) 11.65V

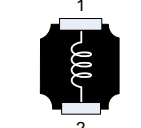
L501

 1) 1.01V
 2) 1.03V

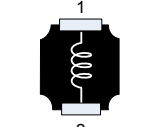
L503

 1) 1.80V
 2) 1.81V

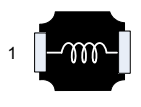
L600

 1) 11.64V
 2) 11.65V

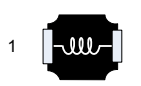
L300

 1) 1.8V
 2) 1.81V

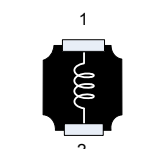
L301

 1) 1.52V
 2) 1.51V


L304

 1) 0.89V
 2) 1.0V


L305

 1) 3.28V
 2) 3.28V


L502

 1) 3.32V
 2) 3.31V VCC


L505

 1) 8.48V
 2) 8.48V IC501 Pin 30
 8.48V HVDD P601 21 (P602 30)


L506

 1) 11.64V
 2) 11.62V Panel_VCC


D500

 A) Gnd
 C) 3.32V

D501

 A) 16.95V
 C) 11.62V

D502

 A) (0.45V)
 C) 4.53V

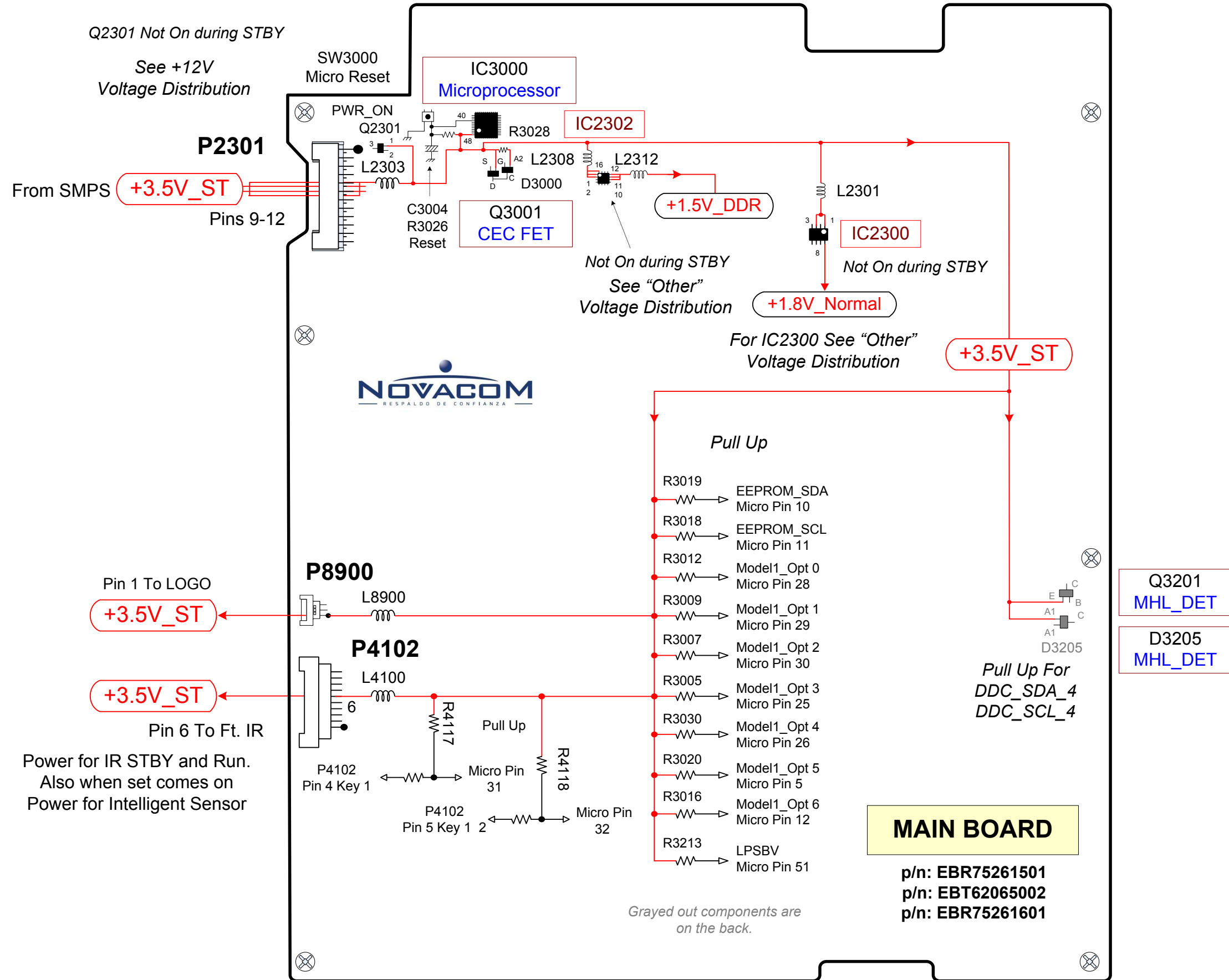
D503

 A) 20.27V
 C) 27.97V

D505

 A) (-5.09V)
 C) (-0.46V)

D506

 A) 13.13V
 C) 20.27V

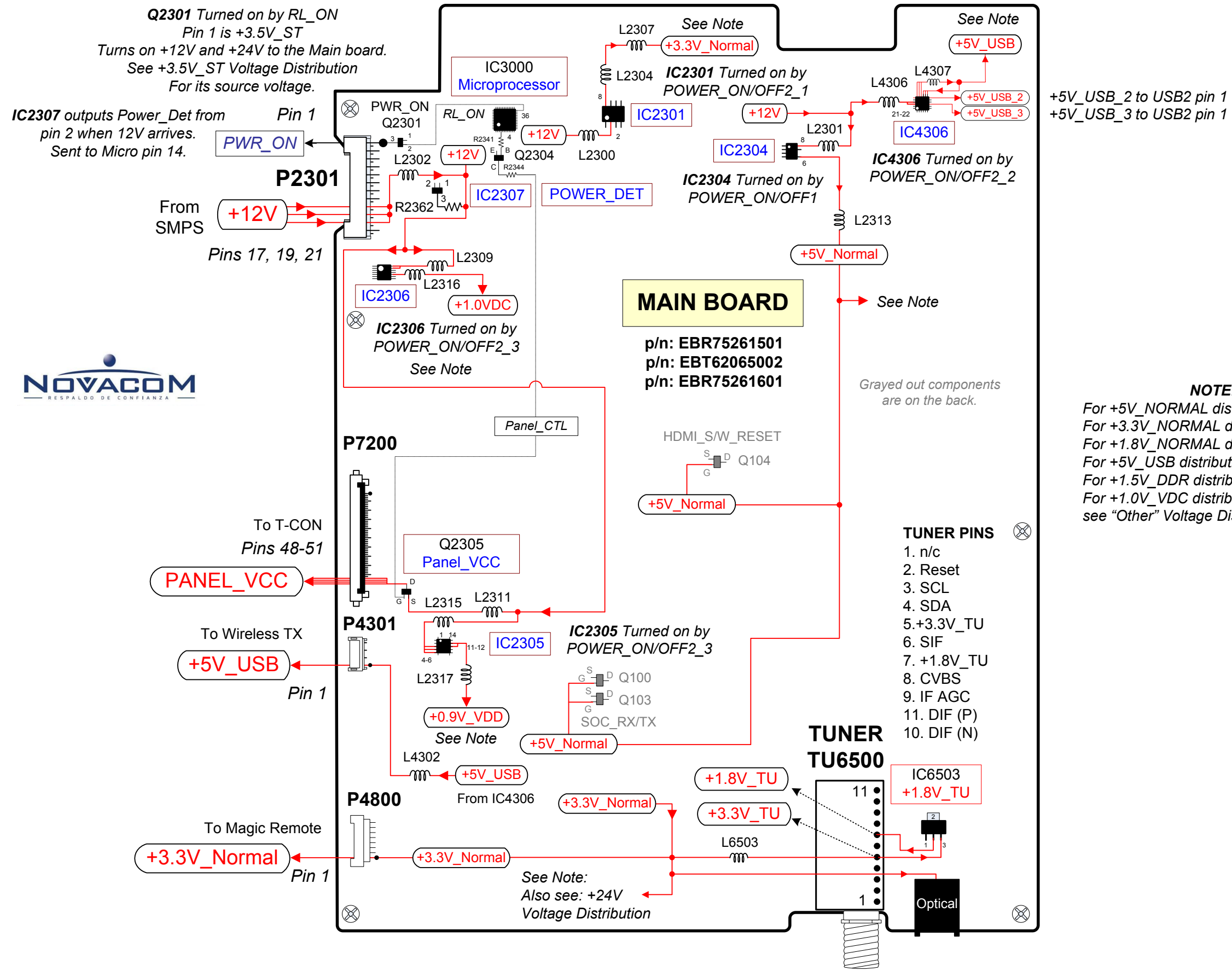


55LM8600 Main Board (+3.5V_ST) Voltage Distribution



Be First, Do it Right, Work Smart!

55LM8600 Main Board (+12V) Voltage Distribution

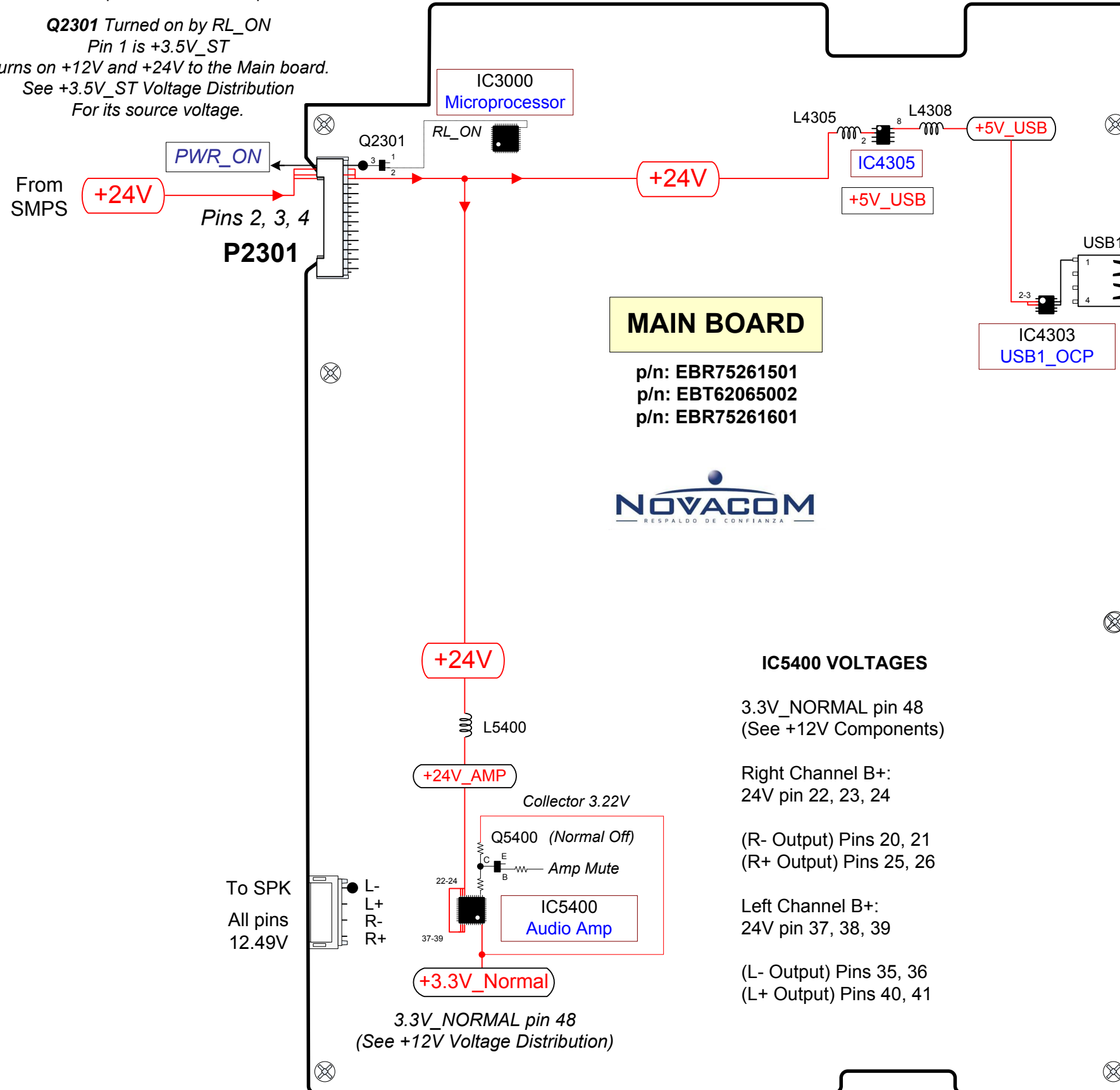


Be First, Do it Right, Work Smart!

55LM8600 Main Board (+24V) Voltage Distribution

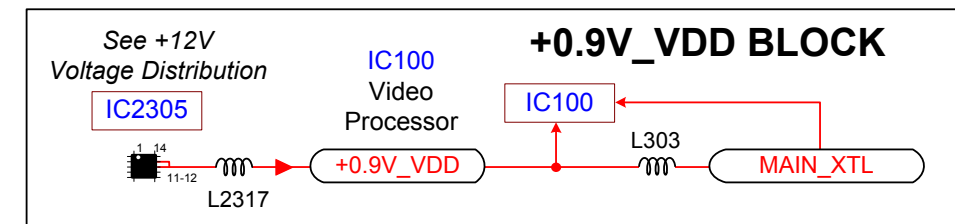
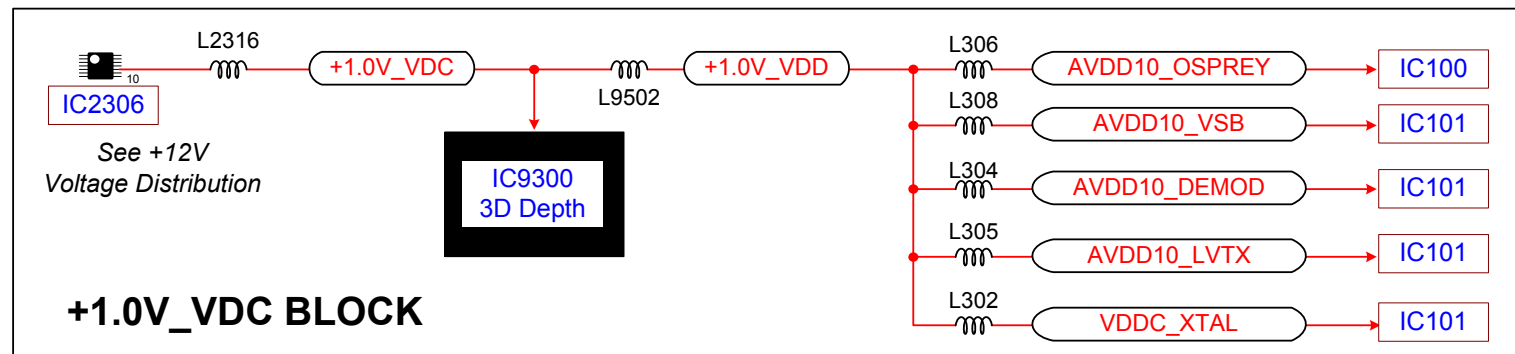
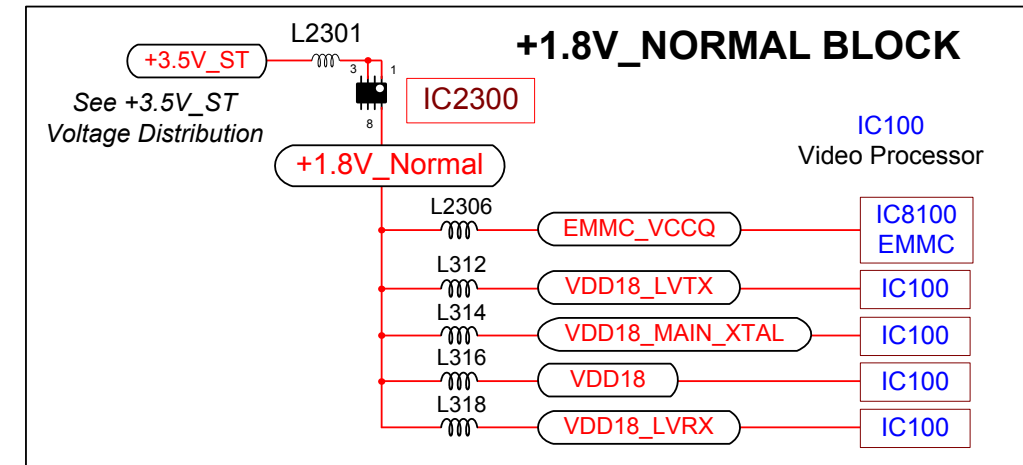
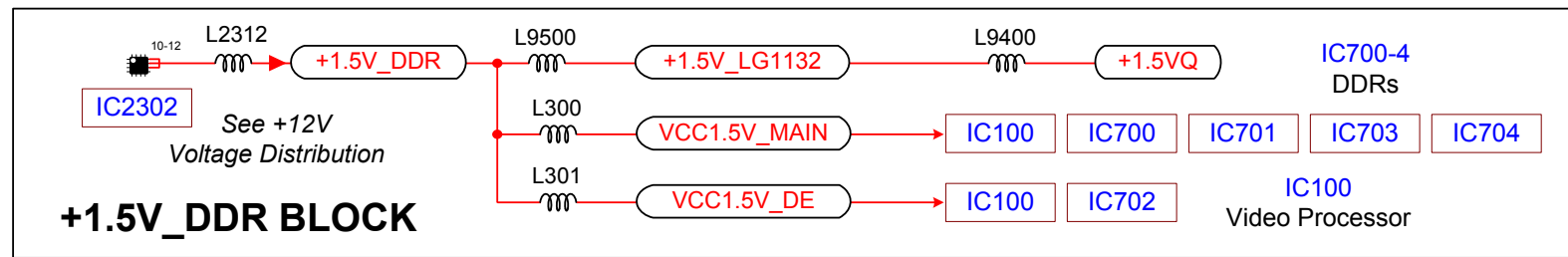
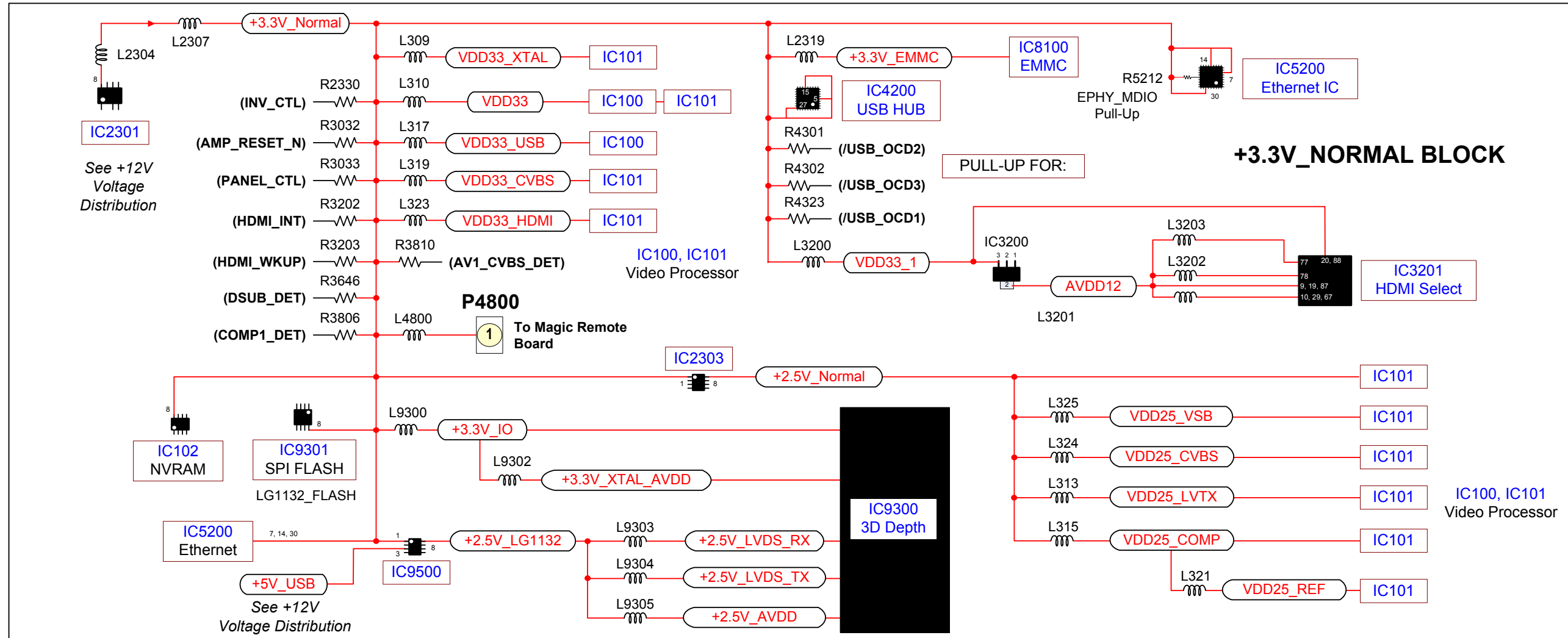
Note: Q2301 is not part of the 24V components.

Q2301 Turned on by **RL_ON**
 Pin 1 is +3.5V_ST
 Turns on +12V and +24V to the Main board.
 See +3.5V_ST Voltage Distribution
 For its source voltage.



Be First, Do it Right, Work Smart!

55LM8600 Main Board (Other) Voltage Distribution



55LN5700 INTERCONNECT DIAGRAM

Note: If a particular area is exhibiting a dimmer backlight level than other areas or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,

1st: Check the P-DIM level, it should rise with the percentage shown on screen.
100% = 2.91V. Follow the P-DIM signal all the way to the SMPS.

DIM OR DARK PICTURE AREA (LED SINGLE BLOCK TEST):

Turn the Brightness, Contrast and Backlights all the way up. Confirm 135V D801 or D807 and 185V D804. Confirm P-DIM is approx. 3V. Using a 220Ω resistor, jump any of the blocks grounding pins on P801 (pins 1 top 4/7 or 3 bottom 3/7) while observing the picture and each block should turn on maximum.

P201 "SMPS Board" to P2400 "MAIN Board"

| PIN | LABEL | STBY | RUN | Diode Check |
|-------|---------|-------|------------|-------------|
| 17-18 | Gnd | Gnd | Gnd | Gnd |
| 16 | 24V | 0V | 24.82V | OL |
| 13-15 | 12V | 0V | 12.01V | 1.38V |
| 11-12 | Gnd | Gnd | Gnd | Gnd |
| 9-10 | 24V | 0V | 24.82V | 1.09V |
| 7-8 | Gnd | Gnd | Gnd | Gnd |
| 6 | *P-DIM2 | 0V | 0.15V~2.9V | OL |
| 5 | 3.5V_ST | 3.56V | 3.54V | OL |
| 4 | *P-DIM | 0V | 0.15V~2.9V | OL |
| 3 | 3.5V_ST | 3.56V | 3.54V | OL |
| 2 | DRV_ON | 0V | 3.41V | OL |
| 1 | PWR_ON | 0V | 3.40V | 1.14V |

*0% to 100%

Note: Pin 2 (DRV_ON) is INV_ON from Main.
Note: Pin 16: Is Open. The voltage is loopback from the Main board.

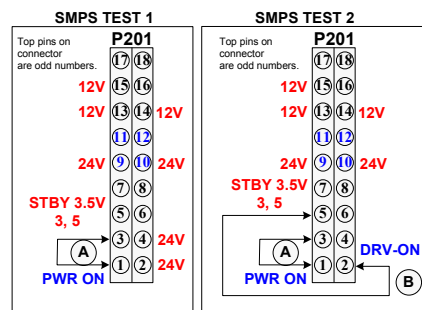
WARNING: Do not add or remove jumpers with Power Applied.

SMPS TEST 1: To Force Power Supply On without the Main Board.

Disconnect the P2400 on the Main board.
(A) Jump pin 3 or 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main and 84.5V to the Backlights. (No Backlights at this time).
LED Ground Return Line is 0.27V P801 pin 1 (8.04 P801 Pin 3).
Remove AC power. Leave the jumper in place.

SMPS TEST 2: (Turning on the Backlights)

(B) Jump pin 3 or 5 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, LED POWER is 129.1V P801 pin 4 (172V P801 pin 2).
LED Ground Return Line is 0.95V P801 pin 1 (0.96 P801 Pin 3).



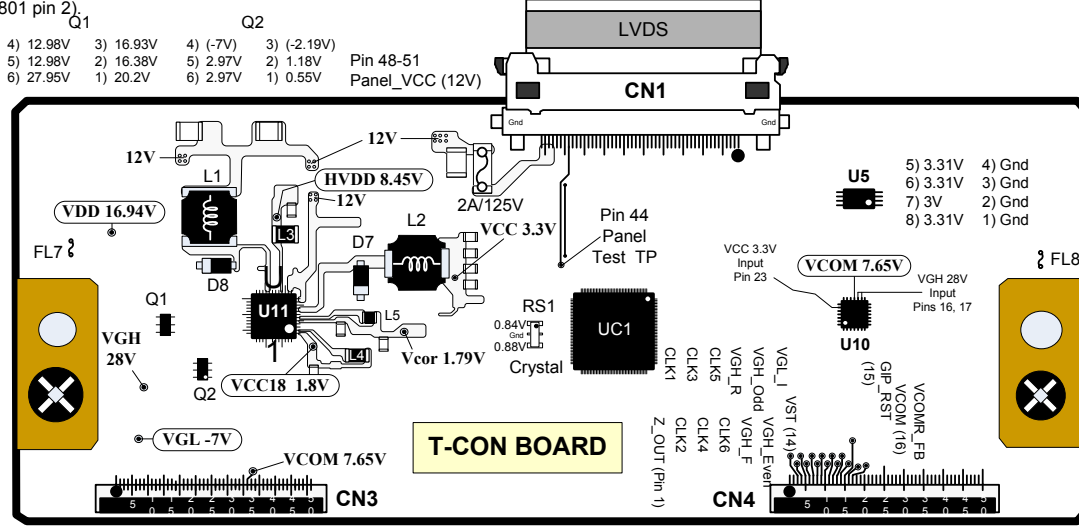
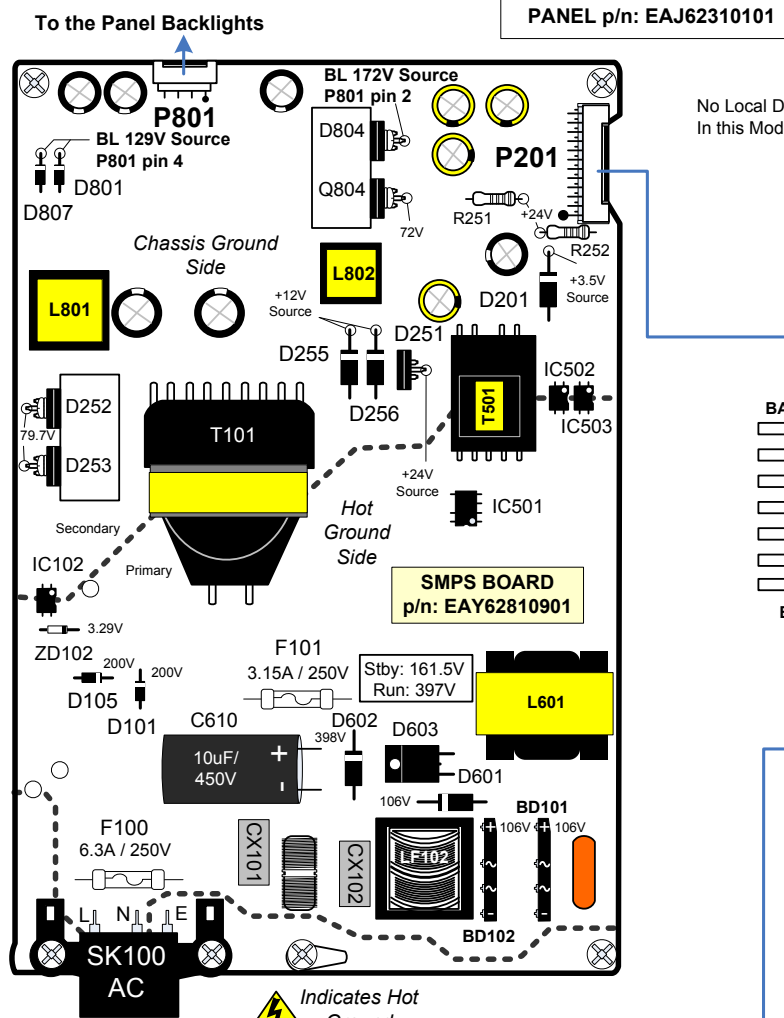
Note: If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P801. When AC is reapplied, the Backlight power will start at 85V, rise to 172V then gradually fall back to 86V.

84 Total LEDs, 6 LEDs per/Board.
2 boards per/row. Top group consist of 4 rows consisting of 48 LEDs.
Bottom group consist of 3 rows consisting of 36 LEDs.
2 Groups make up the backlights.

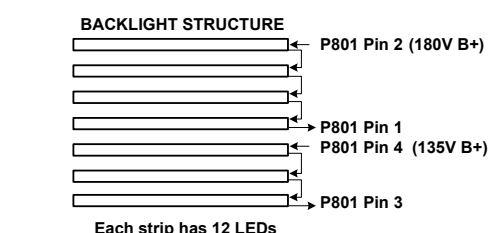
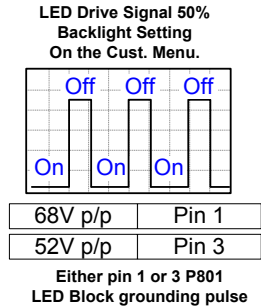
Back Left of Set
Keyboard
p/n: EBR77104601
To Key Board



Bottom Center of Set
Front IR
p/n: EBR76405802



Additional Voltages from U10 to the Panel with no silk screen labels:
U10 pin 1 (7.76V) CN4 pin 48 CN5 pin 3
U10 pin 2 (7.74V) CN4 pin 47 CN5 pin 4
U10 pin 3 (7.75V) CN4 pin 46 CN5 pin 5
U10 pin 4 (7.74V) CN4 pin 45 CN5 pin 6
U10 pin 5 (7.76V) CN4 pin 44 CN5 pin 7
U10 pin 6 (7.74V) CN4 pin 43 CN5 pin 8
U10 pin 8 (27.9V) CN4 pin 42 CN5 pin 9
U10 pin 9 (-6.97V) CN4 pin 41 CN5 pin 10
U10 pin 10 (-6.95V to 27.9V) CN4 pin 40 CN5 pin 11
U10 pin 11 (-6.95V to 27.9V) CN4 pin 39 CN5 pin 12



For LVDS Waveforms see Page 4 of the Interconnect diagram.



PANEL TEST
To run the T-CON "Panel Test", remove the LVDS cables. Jump 12V to the 12V fuse. Jump VCC 3.3V to pin 44 on CN1. White, Red, Blue, Green and Black patterns show on screen.

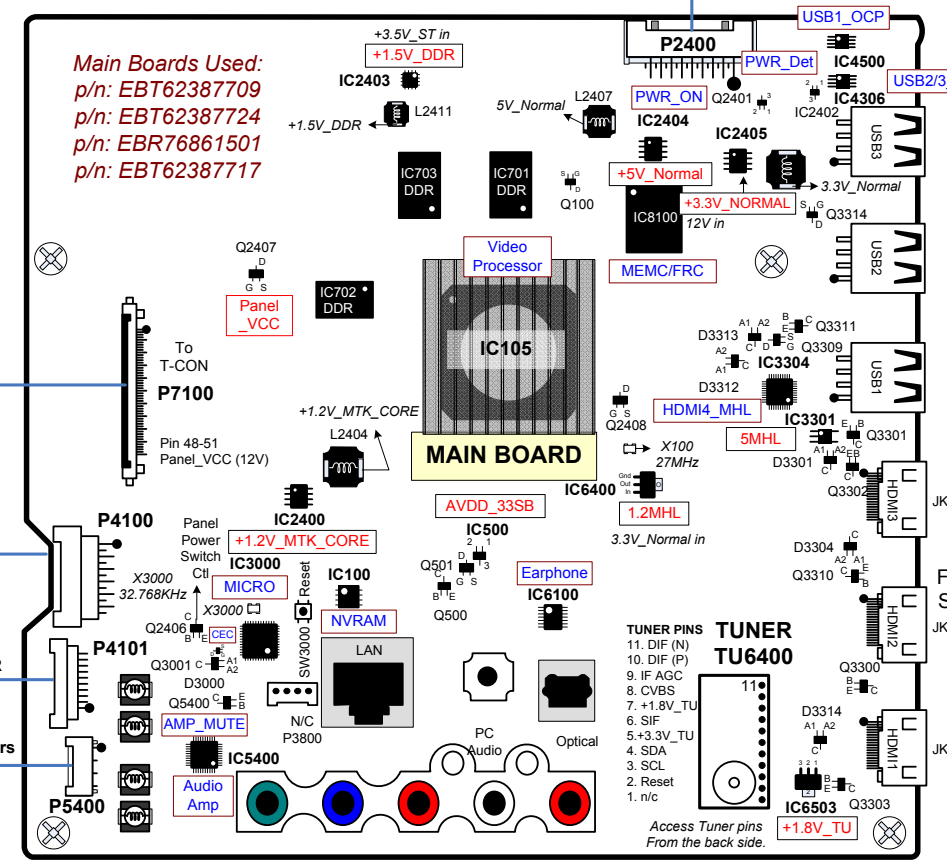
P801 "SMPS Board" To "Panel LEDs"

| Pin | Label | Run | Diode Check |
|-----|-------|-----------------|-------------|
| 1 | BL- | *66.5V - 11.18V | OL |
| 2 | BL+ | 180V | OL |
| 3 | BL- | *50.4V - 8.95V | OL |
| 4 | BL+ | 135V | OL |

Controls the Top 4/7 of the Picture backlights.
Controls the Bottom 3/7 of the Picture backlights.

*Dim to Bright

For DC voltages for Main board components see Page 2 of the Interconnect diagram.



P4101 "MAIN" to "Front IR Board" J1

| PIN | LABEL | STBY | RUN | DIODE |
|-----|---------|-------|-------|-------|
| 10 | EYE_SDA | 3.56V | 3.52V | OL |
| 9 | EYE_SCL | 3.56V | 3.52V | OL |
| 8 | Gnd | Gnd | Gnd | Gnd |
| 7 | IR | 3.54V | 3.49V | OL |
| 6 | LED_R | 1.65V | 0V | OL |
| 5 | Gnd | Gnd | Gnd | Gnd |
| 4 | 3.5V_ST | 3.56V | 3.52V | OL |
| 3 | Key2 | 3.56V | 3.52V | OL |
| 2 | Key1 | 3.56V | 3.52V | OL |
| 1 | Gnd | Gnd | Gnd | Gnd |

P4100 "Main Board" to "WiFi Board"

| PIN | LABEL | RUN | DIODE | To What |
|-----|---------------|-------|-------|------------|
| 1 | +3.5V_ST_Wake | 3.48V | 0.83V | WiFi Tx/Rx |
| 2 | N/C | n/c | 0.61V | WiFi Tx/Rx |
| 3 | WIFI_DM | 0.04V | 0.73V | WiFi Tx/Rx |
| 4 | N/C | n/c | 1.23V | WiFi Tx/Rx |
| 5 | WIFI_DP | 0.04V | 0.72V | WiFi Tx/Rx |
| 6 | N/C | n/c | OL | WiFi Tx/Rx |
| 8 | N/C | n/c | OL | WiFi Tx/Rx |
| 9 | WIFI_PWR_On | 0.04V | OL | WiFi Tx/Rx |
| 10 | N/C | n/c | 1.36V | WiFi Tx/Rx |
| 11 | Gnd | Gnd | Gnd | WiFi Tx/Rx |
| 12 | N/C | n/c | 1.23V | WiFi Tx/Rx |

No Stand_By Voltages




p/n: EAT61813801

| Pin | Diode | P4100 |
|-----|-------|-------|
| 1 | 0.94V | 1 |
| 2 | 0.86V | 3 |
| 3 | 1.11V | 5 |
| 4 | Gnd | 7 |
| 5 | 1.56V | 9 |
| 6 | OL | n/c |

IC100 NVRAM
(Non-Volatile)


Pin



| | |
|-----|----------------|
| [1] | n/c |
| [2] | Gnd |
| [3] | 3.31V |
| [4] | Gnd |
| [5] | 3.31V |
| [6] | 3.31V |
| [7] | 0V |
| [8] | 3.31V (Vcc In) |

IC500 AVDD_33SB
Regulator


Pin



| | |
|-----|----------------|
| [1] | Gnd |
| [2] | 3.34V (Out) |
| [3] | 3.52V (Vcc In) |

IC2400 +1.2V_MTK_CORE
Regulator


Pin



| | |
|-----|-----------------|
| [1] | Gnd |
| [2] | 11.97V (Vcc In) |
| [3] | Gnd |
| [4] | 0.8V |
| [5] | 1.6V |
| [6] | 3.49V |
| [7] | 1.22V (Out) |
| [8] | 1.22V (Out) |

IC2402 PWR_Det
+12V in


Pin



| | |
|-----|-------------|
| [1] | Gnd |
| [2] | 3.66V (Out) |
| [3] | 3.69V (In) |

IC2403 +1.5V_DDR
Regulator


Pin



| | |
|------|----------------|
| [1] | 3.52V (Vcc In) |
| [2] | 3.52V (Vcc In) |
| [3] | Gnd |
| [4] | Gnd |
| [5] | Gnd |
| [6] | 0.83V |
| [7] | 0.68V |
| [8] | 0.51V |
| [9] | 1.85V |
| [10] | 1.53V (Out) |
| [11] | 1.53V (Out) |
| [12] | 1.53V (Out) |
| [13] | 5.06V |
| [14] | n/c |
| [15] | 3.5V |
| [16] | 3.52V (Vcc In) |

IC2404 (+5V_NORMAL)
Regulator

Pin




| | |
|-----|-----------------|
| [1] | 9.2V |
| [2] | 0V (n/c) |
| [3] | 0V (n/c) |
| [4] | 1.22V |
| [5] | 3.22V |
| [6] | Gnd |
| [7] | 24.44V (Vcc In) |
| [8] | 5.10V |



IC2405 +3.3V_NORMAL
Regulator


Pin



| | |
|-----|-----------------|
| [1] | 3.44V |
| [2] | 0.77V |
| [3] | 5.51V |
| [4] | 5.32V |
| [5] | Gnd |
| [6] | 3.32V (Out) |
| [7] | 8.78V |
| [8] | 11.98V (Vcc In) |

IC3301 +5VMHL
Regulator


Pin



| | |
|-----|----------------|
| [1] | 0V |
| [2] | Gnd |
| [3] | 0.07V |
| [4] | 0V (MHL_Det) |
| [5] | 5.10V (Vcc In) |

IC4306 +5V_USB1
OCP


Pin



| | |
|-----|------------------|
| [1] | Gnd |
| [2] | 5.10V (Vcc In) |
| [3] | 3.3V |
| [4] | 3.34V |
| [5] | 3.31V |
| [6] | 5.10V (Out USB2) |
| [7] | 5.10V (Out USB3) |
| [8] | 3.31V |

IC6400 1.2V_MHL
Regulator


Pin



| | |
|-------|------|
| [Gnd] | Gnd |
| [Out] | 1.2V |
| [In] | 3.3V |

IC4500 +5V_USB2/3
OCP


Pin



| | |
|-----|------------------|
| [1] | Gnd |
| [2] | 5.10V (Vcc In) |
| [3] | 5.10V (Vcc In) |
| [4] | 3.3V |
| [5] | 3.3V |
| [6] | 5.10V (Out USB1) |
| [7] | 5.10V (Out USB1) |
| [8] | 5.10V (Out USB1) |

IC6100 Earphone
Amp


Pin



| | |
|------|-------------|
| [1] | Gnd |
| [2] | 0V (R In) |
| [3] | 0V (R Out) |
| [4] | Gnd |
| [5] | 3.5V (Mute) |
| [6] | (-3.24V) |
| [7] | (-1.62V) |
| [8] | 1.66V |
| [9] | 3.31V |
| [10] | Gnd |
| [11] | 2.34V |
| [12] | 0V (L Out) |
| [13] | 0V (L In) |
| [14] | Gnd |

IC6503 +1.8V_TU
Regulator


Pin



| | |
|-----|-------------|
| [1] | 0V (Gnd) |
| [2] | 1.81V (Out) |
| [3] | 3.3V (In) |


Q100 **OTP_Write Switch**

Pin [S] 3.31V
[G] 3.30V
[D] 0V




Q500 **'+3.5V_ST_WAKE Switch Q501 CTRL**

Pin [B] 0.65V
[C] 0.05V
[E] Gnd




Q501 **'+3.5V_ST_WAKE Switch**

Pin [S] 0V
[G] 0.58V
[D] 3.52V




Q2401 **PWR_On Switch**

Pin [1] 3.51V
[2] 2.83V
[3] 3.42V




Q2406 **Panel VCC Switch (Q2407) Control**

Pin [B] 0.64V
[C] 0.06V
[E] Gnd




Q2407 **Panel_VCC Switch**

Pin [G] 1.8V
[S] 11.97V
[D] 11.96V




Q2408 **VDD3V3_HDMI Switch**

Pin [G] 1.95V
[S] 3.31V
[D] 3.31V




Q3001 **CEC (Consumer Electronic Control)**

Pin [G] 3.51V
[S] 3.59V
[D] 7.66V




Q3300 **HDMI 1, 2 Hot Swap**

Pin B 0V
C 0V
E Gnd




Q3301 **MHL_Det Switch Driver**

Pin [B] 0.53V
[C] 3.51V
[E] 0V




Q3302 **MHL Detection Switch**

Pin [B] 3.52V
[C] 0V
[E] 3.51V




Q3303 **HDMI1_Hot Swap**

Pin B 0V
C 0V
E Gnd




Q3309 **MHL_SDA/SCL 5V Pull-Up**

Pin [G] 5.09V
[S] 5.10V
[D] 2.46V



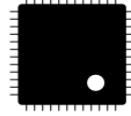

Q3310 **MHL_Det Switch Changes to HDMI_Det**

Pin [B] 0V
[C] 5V
[E] 0V




IC3000 **Micro Processor**

Pin [1] 0.06V
[2] 3.3V
[3] 0.05V
[4] 0.08V
[5] 0.02V
[6] 3.51V
[7] 3.49V
[8] 3.51V
[9] 3.51V
[10] 3.51V
[11] 3.51V
[12] 0.17V
[13] 3.34V
[14] 3.66V
[15] 3.51V
[16] 0V
[17] 3.51V
[18] 3.51V
[19] 3.24V
[20] 3.34V
[21] 0.08V
[22] 0V
[23] 0V
[24] 0V


Q3311 **MHL_SDA/SCL 5V Q3309 Control**

Pin B 0V
C 5.09V
E Gnd




Q3314 **HDMI3 Hot Swap Load Pull-Up**

Pin [G] 0V
[S] 0V
[D] 11.98V




Q5400 **Amp Mute Driver**

Pin [B] 0V
[C] 3.30V
[E] Gnd




IC3304 **HDMI4_MHL Processor**

Pin [25] 0V
[26] 0.04V
[27] 3.5V
[28] 0V
[29] 0V
[30] 0V
[31] 3.51V
[32] 3.51V
[33] 3.51V
[34] 3.51V
[35] 0V
[36] 0V
[37] 0V
[38] 1.06V
[39] 3.51V
[40] 3.51V
[41] 0.64V
[42] 0.12V
[43] 0V
[44] 0V (n/c)
[45] 0V (n/c)
[46] 2.09V
[47] Gnd
[48] 3.51V (Vcc In)




D3000 **CEC Bias**

Pin [A1] 2.9V
[A2] 3.52V
[C] 3.5V




D3301 **DDC_SCL_4_JACK Pull-Up**

Pin [A1] 3.51V
[A2] 5.10V
[C] 5V



D3304 **DDC_SCL_MHL Routing**


Pin [A1] 3.51V
[A2] 5.10V
[C] 5V



IC5400 **Audio Amp**


Pin [1] Gnd
[2] Gnd
[3] Gnd
[4] Gnd
[5] 0V
[6] 1.2V
[7] 0V
[8] 1.63V
[9] 1.62V
[10] 3.31V
[11] 3.31V
[12] 3.31V
[13] 3.25V
[14] 1.65V
[15] 1.65V
[16] 16.77V
[17] Gnd
[18] 12.2V
[19] 24.45V
[20] 24.45V

Pin [21] 12.2V
[22] Gnd
[23] 16.77V
[24] 3.16V
[25] Gnd
[26] 0V
[27] 5.12V
[28] 16.76V
[29] Gnd
[30] **12.2V**
[31] 24.45V
[32] 12.2V
[33] 12.2V
[34] Gnd
[35] 16.76V
[36] 3.29V
[37] Gnd
[38] 1.59V
[39] Gnd
[40] 3.31V (Vcc In)



D3310 **DC_SCL_MHL Pull-Up**

Pin [A1] 0V
[A2] 2.49V
[C] 5.09V



D3311 **DC_SDA_MHL Pull-Up**

Pin [A1] 0V
[A2] 2.49V
[C] 4.83V



D3312 **DC_SDA_SCL Pull-Up**

Pin [A1] 0V
[A2] 2.49V
[C] 4.83V




U3 DC-to-DC

Panel Power Level Shifter

| Pin | Pin |
|------------------------------------|--------------------|
| [1] 7.76V (GCLK1) | [15] (-6.97) (VGL) |
| [2] 7.74V (GCLK2) | [16] 27.96V (VGH) |
| [3] 7.75V (GCLK3) | [17] 27.96V (VGH) |
| [4] 7.74V (GCLK4) | [18] 7.65V (V_COM) |
| [5] 7.76V (GCLK5) | [19] 7.65V |
| [6] 7.74V (GCLK6) | [20] 7.62V |
| [7] 2.5V | [21] 16.9V |
| [8] 27.9V (VGH_R) | [22] Gnd |
| [9] (-6.97) (VGH_F) | [23] 3.3V (VCC) |
| [10] *(-6.95V to 27.9V) (VGH_ODD) | [24] 0V |
| [11] *(-6.95V to 27.9V) (VGH_EVEN) | [25] 0V |
| [12] (-6.91) (VST) | [26] 0.7V |
| [13] (-6.88) (GIP_RST) | [27] 1.27V |
| [14] (-6.97) | [28] 3.24V |

U10



* EVERY Second



U2 DC-to-DC

T-CON and Panel Power DC-to-DC Conv

| Pin | Pin |
|------------------------|------------------------|
| [1] 1.81V | [25] 4.95V |
| [2] 1.86V | [26] 0.53V |
| [3] Gnd | [27] 3.3V |
| [4] 3.3V | [28] 3.3V |
| [5] 1.79V | [29] 4.99V |
| [6] 1.81V | [30] 1.3V |
| [7] Gnd | [31] 16.4V |
| [8] 3.31V (VCC) | [32] 27.94V |
| [9] 3.31V (VCC) | [33] 5.69V |
| [10] 0V | [34] 8.21V |
| [11] 11.7V (Panel_VCC) | [35] (-6.98V) (VGL_FB) |
| [12] 11.7V (Panel_VCC) | [36] 1.19V |
| [13] 11.7V (Panel_VCC) | [37] 13.86V |
| [14] 11.7V (Panel_VCC) | [38] 12.85V |
| [15] 8.45V (H_VDD) | [39] 10.91V |
| [16] 8.44V (H_VDD_FB) | [40] 6.55V |
| [17] Gnd | [41] 4.6V |
| [18] Gnd | [42] 3.5V |
| [19] Gnd | [43] 7.65V |
| [20] 11.7V (Panel_VCC) | [44] 7.64V |
| [21] 11.7V (Panel_VCC) | [45] 7.63V |
| [22] 16.97V | [46] 7.61V (VCOM_RFB) |
| [23] 16.97V (VDD) | [47] 1.61V |
| [24] Gnd | [48] Gnd |

U11



U5 Buffer

| Pin |
|-----------|
| [1] Gnd |
| [2] Gnd |
| [3] Gnd |
| [4] Gnd |
| [5] 3.31V |
| [6] 3.31V |
| [7] 3.31V |
| [8] 3.31V |

Q1 VDD Rectifier

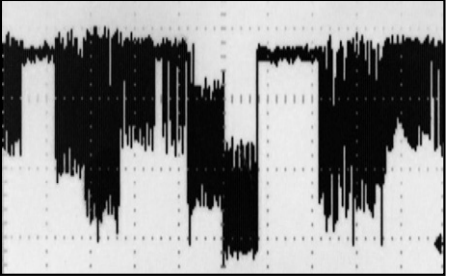
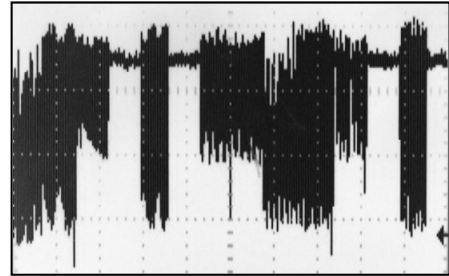
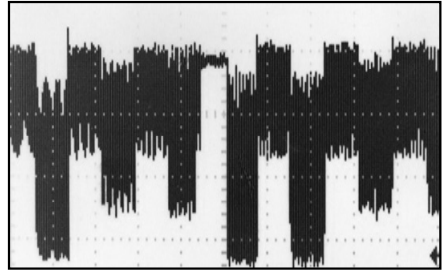
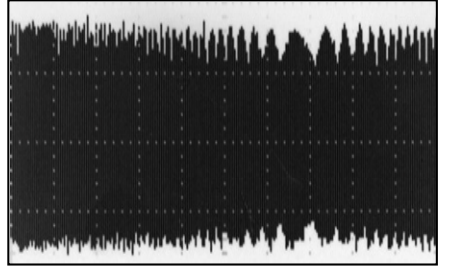
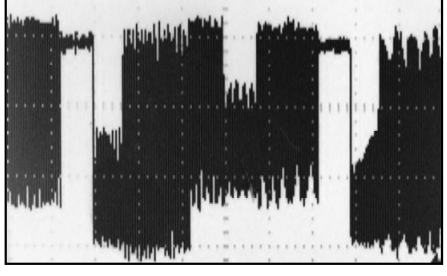
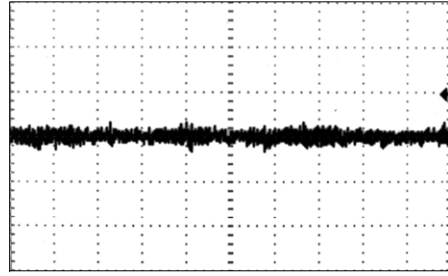
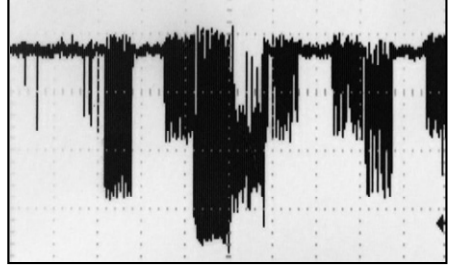
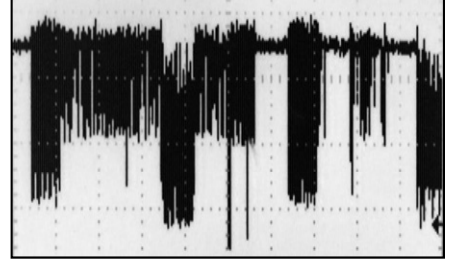
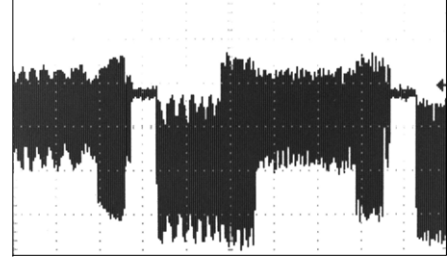
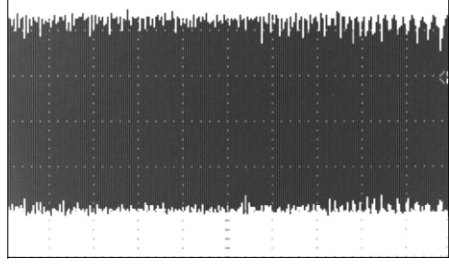
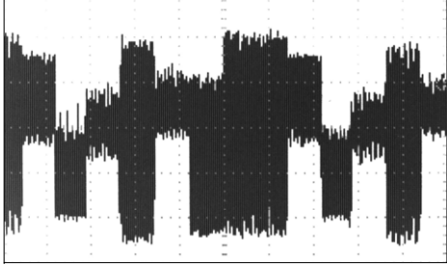
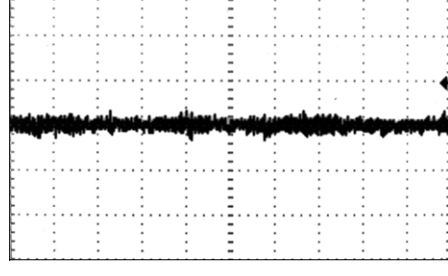
| Pin |
|-------------------|
| [1] 20.2V |
| [2] 16.38V |
| [3] 16.93V Output |
| [4] 12.98V |
| [5] 12.98V |
| [6] 12.95V |

Q2 VGL Rectifier

| Pin |
|------------------|
| [1] 0.56V |
| [2] 1.18V |
| [3] (-2.9V) |
| [4] (-7V) Output |
| [5] 2.97V |
| [6] 2.97V |

55LN5700 P7100 LVDS Connector Video Waveforms

All LVDS signals are taken with SMPTY Color Bar signal input (1080P) Component Input.
 All LVDS signals are "Differential Pairs". The ones shown are the "Positive" signal of the pair. The Negative signal looks exactly the same but flipped 180°. Scope Settings are 100mV per/division, 2.5uSec per/division.

| | | | | | |
|--|---|--|--|--|--|
| <p style="text-align: center;">Pin 12</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 14</p>  <p style="text-align: center;">384mV p/p</p> | <p style="text-align: center;">Pin 16</p>  <p style="text-align: center;">380mV p/p</p> | <p style="text-align: center;">Pin 19</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 22</p>  <p style="text-align: center;">348mV p/p</p> | <p style="text-align: center;">Pin 24</p>  <p style="text-align: center;">56mV p/p No Waveform</p> |
| <p style="text-align: center;">Pin 28</p>  <p style="text-align: center;">384mV p/p</p> | <p style="text-align: center;">Pin 30</p>  <p style="text-align: center;">356mV p/p</p> | <p style="text-align: center;">Pin 32</p>  <p style="text-align: center;">448mV p/p</p> | <p style="text-align: center;">Pin 35</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 38</p>  <p style="text-align: center;">449mV p/p</p> | <p style="text-align: center;">Pin 40</p>  <p style="text-align: center;">64mV p/p No Waveform</p> |

55LS4500 INTERCONNECT DIAGRAM

Note: If a backlights are exhibiting a dim picture, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not,

1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100% = 3.22V. Follow the P-DIM signal all the way to the SMPS.

DIM OR DARK PICTURE: Turn the Brightness, Contrast and Backlights all the way up. Confirm 73V D801. Confirm P-DIM is approx. 3V. Using a 220Ω resistor, jump backlight grounding pins on P202 (pins 1-6) or P203 (pins 3-8) while observing the picture. The Backlights should turn on maximum. If not, replace panel.

PANEL p/n: EAJ62088401

P201 Connector "SMPS Board" To P403 "MAIN Board"

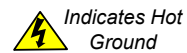
| Pin | Label | STBY | Run | Diode CK |
|-------|-----------|-------|-------------|----------|
| 24 | Error | 0V | 0V | OL |
| 23 | N/C | n/c | 1.21V | OL |
| 22 | P_DIM | 0V | 0.15V~2.91V | OL |
| 21 | 12V | 0V | 12.15V | 0.5V |
| 20 | N/C | n/c | n/c | OL |
| 19 | 12V | 0V | 12.15V | 0.5V |
| 18 | DRV_ON | 0V | 3.33V | OL |
| 17 | 12V | 0V | 12.15V | 0.5V |
| 16 | N/C | n/c | n/c | OL |
| 13-15 | Gnd | Gnd | Gnd | Gnd |
| 9-12 | 3.5V_STBY | 3.57V | 3.49V | OL |
| 5-8 | Gnd | Gnd | Gnd | Gnd |
| 2-4 | 24V | 0V | 27.8V | 1.12V |
| 1 | PWR_ON | 0V | 3.36V | 1.21V |

(1) PWR-ON: Starts 12V, 24V Backlight Power 56V. No Backlights.

(2) DRV-ON: Starts Backlights LED Power goes to 73V.

(3) PWM Pins 4: can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition). Output from the Video Processor. Range 0.23V to 2.76V.

(4) PWM2: Fixed and not used.
(5) ERROR: Not used on the Main.



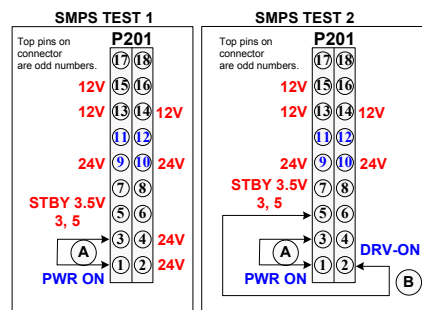
WARNING: Do not add or remove jumpers with Power Applied.

SMPS TEST 1: To Force Power Supply On without the Main Board. Disconnect the P401 on the Main board.

(A) Jump pin 3 or 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main. (No Backlight power will be 56.23V, but no backlights at this time). LED Ground Return Line is (6.28V). Remove AC power. Leave the jumper in place.

SMPS TEST 2: (Turning on the Backlights)

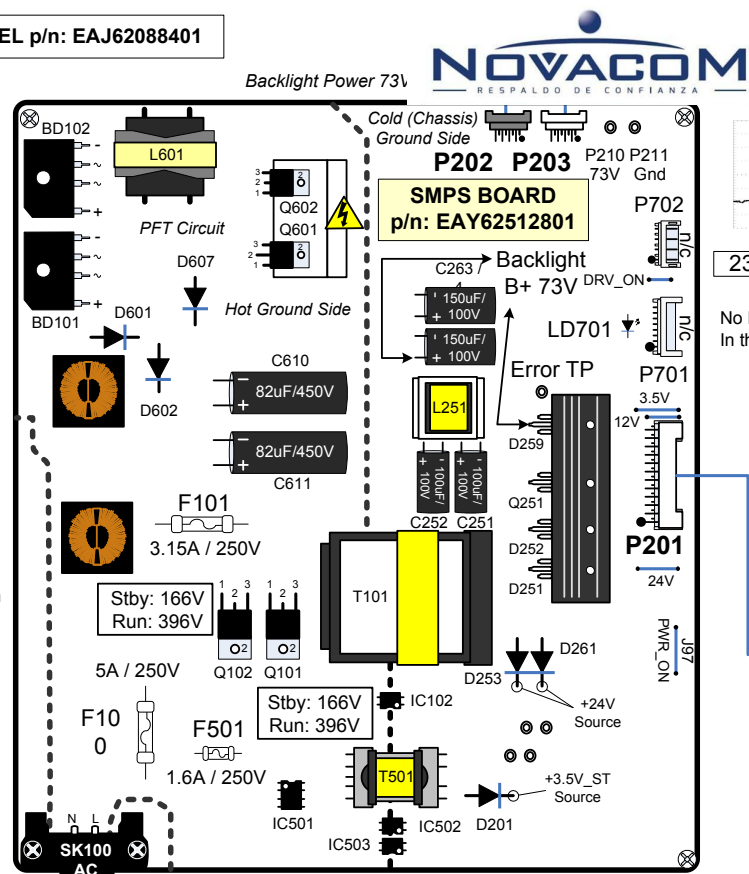
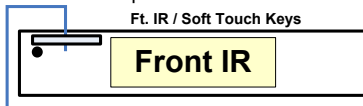
(B) Jump pin 3 or 5 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now read to 72.3V. LED Ground Return Line is (1.46V). P-DIM P201 (pin 4) pulls up to 3.43V.



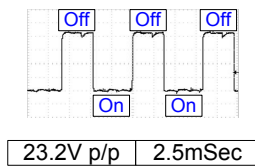
Note: If there is a problem with a load from the panel backlights, you can remove AC and Disconnect P202 or P203. When AC is reapplied, the Backlights will come on and then shut off. Backlight power will start at 57V, rise to 102V and stay there. Power Supply continues to run.

BACKLIGHT INFORMATION:
132 Total LEDs, 66 LEDs per/Board.
2 boards One Right, One Left Side.
6 Control lines from P202 and 6 from P203.
LEDs are controlled by ground return lines P202/P203.
Backlight power 73V.

Ft Right of Set
Ft IR / Soft Touch Keys comes with Front Frame
p/n: ABJ73747211



LED Drive Signal 50%
Backlight Setting
On the Cust. Menu.



No Local Dimming
In this Model.

P202 Black Plug "SMPS Board" To "Panel LEDs"

| Pin | Label | Run | Diode Check |
|-----|-------|----------------|-------------|
| 1 | VC-6 | *1.71V~20.42V | OL |
| 2 | VC-5 | *1.71V~20.42V | OL |
| 3 | VC-4 | *1.71V~20.42V | OL |
| 4 | VC-3 | *1.71V~20.42V | OL |
| 5 | VC-2 | *1.71V~20.42V | OL |
| 6 | VC-1 | *1.71V~20.42V | OL |
| 7 | n/c | n/c | OL |
| 8 | LED+ | *72.2V - 72.5V | OL |

*Bright to Dim screen

P203 White Plug "SMPS Board" To "Panel LEDs"

| Pin | Label | Run | Diode Check |
|-----|-------|----------------|-------------|
| 1 | LED+ | *72.2V - 72.5V | OL |
| 2 | n/c | n/c | OL |
| 3 | VC-12 | *1.71V~20.42V | OL |
| 4 | VC-11 | *1.71V~20.42V | OL |
| 5 | VC-10 | *1.71V~20.42V | OL |
| 6 | VC-9 | *1.71V~20.42V | OL |
| 7 | VC-8 | *1.71V~20.42V | OL |
| 8 | VC-7 | *1.71V~20.42V | OL |

*Bright to Dim screen

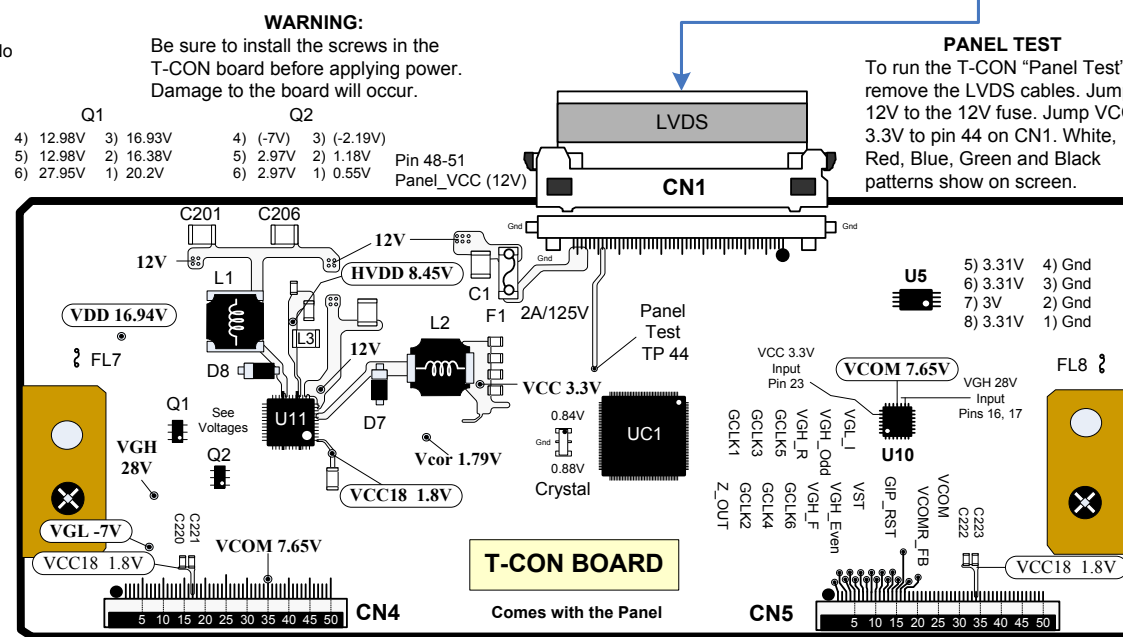
For DC voltages
See P201 Chart

P403
"MAIN Board"
To P201
"SMPS Board"

| Pin | Diode |
|-------|-------|
| 1 | OL |
| 2-4 | OL |
| 5-8 | Gnd |
| 9-12 | 0.65V |
| 13-15 | Gnd |
| 16 | n/c |
| 17 | OL |
| 18 | 1.64V |
| 19 | OL |
| 20 | n/c |
| 21 | OL |
| 22 | OL |
| 23 | 1.13V |
| 24 | n/c |



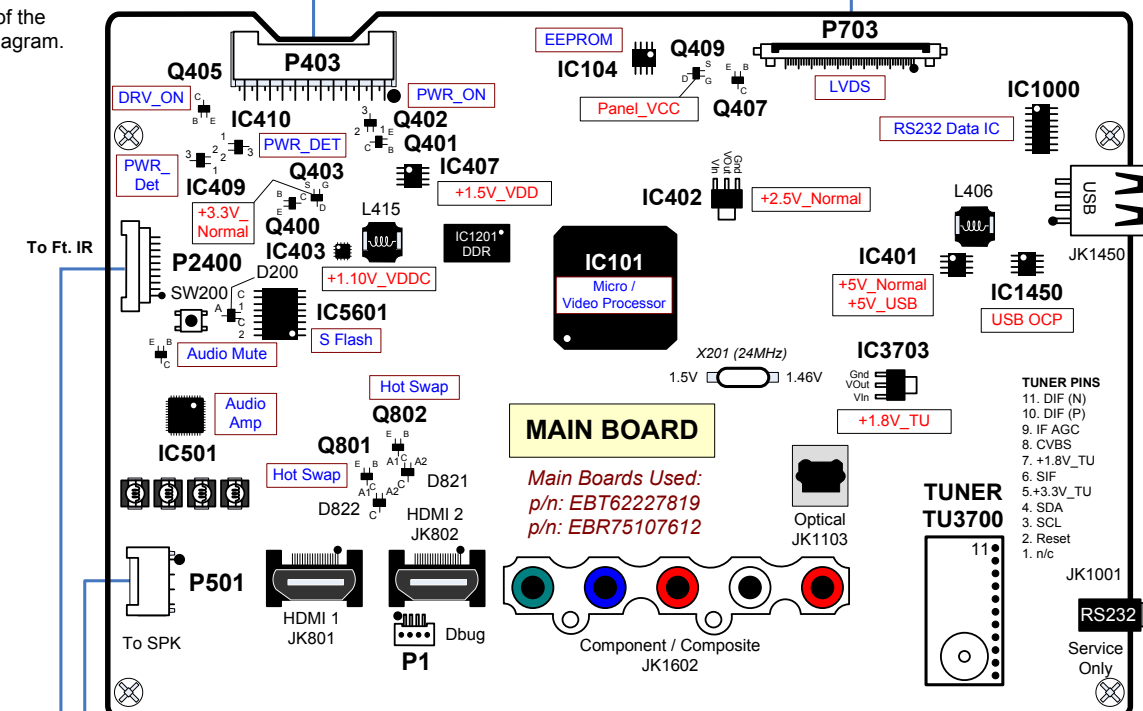
For LVDS Waveforms
see Page 4 of the
Interconnect diagram.



| | | | | | | | |
|------------|------------|------------|--------|------------|------------|------------|--------|
| VDD 16.94V | Pin 31, 32 | VCC18 1.8V | Pin 17 | VDD 16.94V | Pin 19, 20 | VCC18 1.8V | Pin 34 |
| VGL -7V | Pin 38 | VCOM 7.65V | Pin 34 | VGL -7V | Pin 13 | VCOM 7.65V | Pin 17 |
| HVDD 8.45V | Pin 30 | | | HVDD 8.45V | Pin 21 | | |

Additional Voltages from U10 to the Panel with no silk screen labels:

| | |
|--|--|
| U10 pin 1 (7.76V) CN4 pin 48 CN5 pin 3 | U10 pin 6 (7.74V) CN4 pin 43 CN5 pin 8 |
| U10 pin 2 (7.74V) CN4 pin 47 CN5 pin 4 | U10 pin 8 (27.9V) CN4 pin 42 CN5 pin 9 |
| U10 pin 3 (7.75V) CN4 pin 46 CN5 pin 5 | U10 pin 9 (-6.97V) CN4 pin 41 CN5 pin 10 |
| U10 pin 4 (7.74V) CN4 pin 45 CN5 pin 6 | U10 pin 10 (-6.95V to 27.9V) CN4 pin 40 CN5 pin 11 |
| U10 pin 5 (7.76V) CN4 pin 44 CN5 pin 7 | U10 pin 11 (-6.95V to 27.9V) CN4 pin 39 CN5 pin 12 |



MAIN BOARD
Main Boards Used:
p/n: EBT62227819
p/n: EBR75107612

To Speakers
12.44V
Each Pin
SPK
p/n: EAB62648903





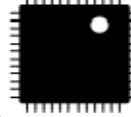



















P2400 "MAIN Board" To "Ft IR / Soft Touch Key Board"

| PIN | LABEL | STBY | RUN | DIODE ✓ |
|-----|------------|-------|-------|---------|
| 10 | Gnd | Gnd | Gnd | Gnd |
| 9 | IR | 3.54V | 3.45V | OL |
| 8 | LED_R | 2.62V | 0V | 2.29V |
| 7 | Gnd | Gnd | Gnd | Gnd |
| 6 | 3.5V_ST | 3.57V | 3.49V | 0.65V |
| 5 | KEY2 | 3.57V | 3.45V | OL |
| 4 | KEY1 | 3.57V | 3.45V | OL |
| 3 | Gnd | Gnd | Gnd | Gnd |
| 2 | Sensor_SDA | 0.33V | 3.37V | 1.11V |
| 1 | Sensor_SCL | 0.33V | 3.37V | 0.78V |

(1) Sensor_SCL / SDA 3.40V p/p only when Energy Savings is in Auto.
(2) IR 3.6V p/p

For DC voltages for Main board
components see Page 2 of the
Interconnect diagram.

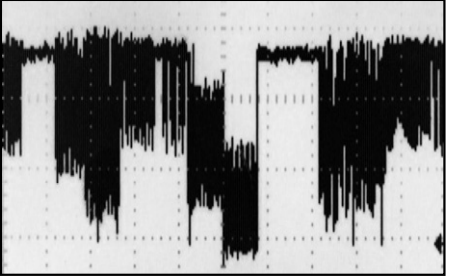
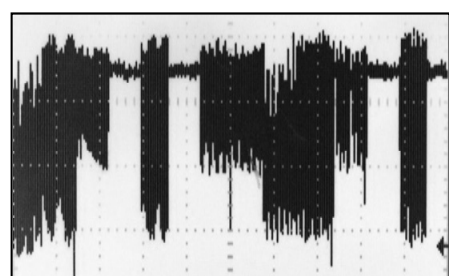
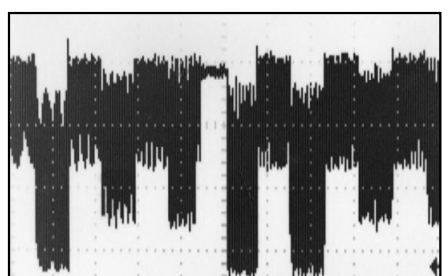
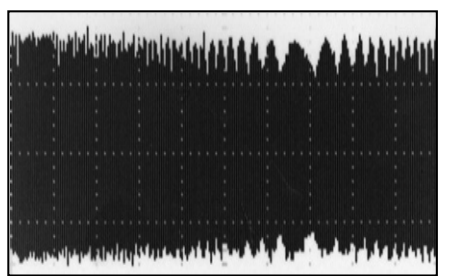
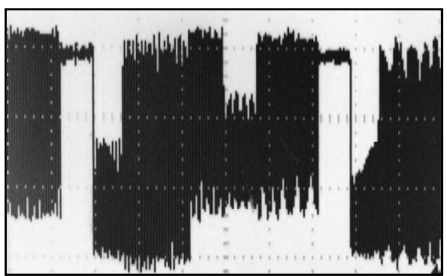
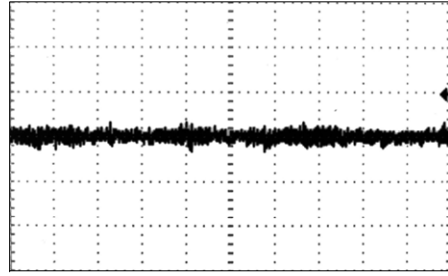
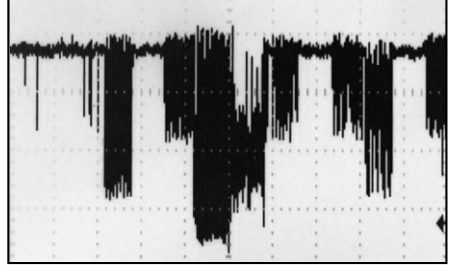
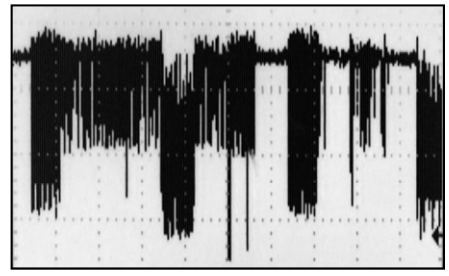
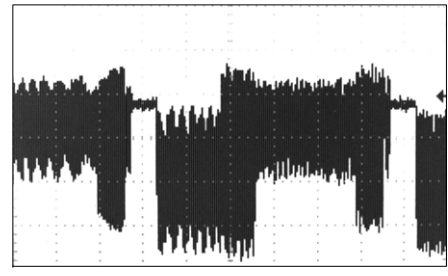
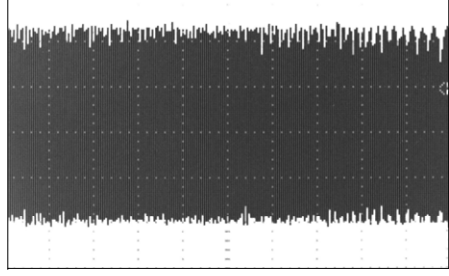
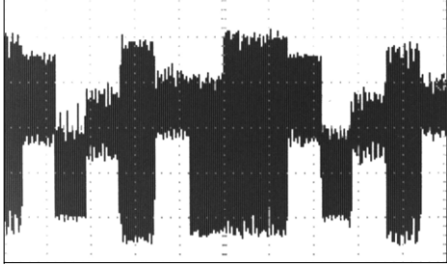
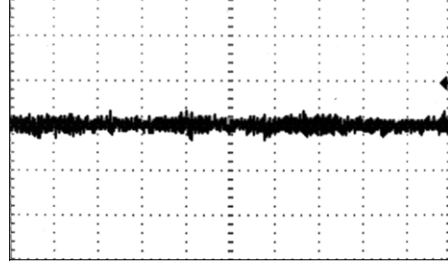
55LS4500 Main Board DC Voltages

| | | | | |
|---|---|---|--|--|
| <p>IC104</p>  <p>HDCP EEPROM</p> <p>Pin</p> <ul style="list-style-type: none"> [1] n/c [2] n/c [3] n/c [4] Gnd [5] 3.4V [6] 3.4V [7] 0V [8] 3.4V (3.3V_Normal) | <p>IC407</p>  <p>+1.5V_VDD Regulator</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 3.29V (Vcc In) [2] n/c [3] 3.29V (Vcc In) [4] 3.27V (En) [5] Gnd [6] 3.18V [7] 0.8V [8] 1.53V (Out) | <p>IC1450</p>  <p>5V for USB OCP</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 0V (Gnd) [2] 5.11V (In) [3] 5.11V (In) [4] 0V (EN) [5] 0V [6] 5.11V (Out) [7] 5.11V (Out) [8] n/c | <p>Q402</p>  <p>Power On/Off Switch</p> <p>Pin</p> <ul style="list-style-type: none"> 1 3.4V (In) +3.3V_ST 2 3.35V (Ctrl) from Q401 3 3.39V (Out) PWR_ON | <p>IC501</p>  <p>Audio Amp</p> <p>Pin</p> <ul style="list-style-type: none"> [1] Gnd [2] 1.2V [3] 1.2V [4] 0.8V [5] Gnd [6] Gnd [7] Gnd [8] 1.3V [9] 1.2V [10] 1.66V [11] 1.66V [12] 3.3V [13] 3.3V [14] 3.3V [15] 3.3V n/c [16] 3.3V n/c [17] 3.3V n/c [18] 18V [19] Gnd [20] 12.4V [21] 12.4V [22] 24.7V [23] 24.7V [24] 24.7V [25] 12.4V [26] 12.4V [27] Gnd [28] 17.8V [29] 6.2V [30] Gnd [31] 5.4V [32] 6.2V [33] 17.8V [34] Gnd [35] 0V [36] 12.4V [37] 12.4V [38] 24.7V [39] 24.7V [40] 24.7V [41] 12.4V [42] 12.4V [43] 17.8V [44] 3.3V [45] Gnd [46] Gnd [47] 1.7V [48] 3.3V |
| <p>IC401</p>  <p>(+5V_NORMAL) (USB_+5V) Regulator</p> <p>Pin</p> <ul style="list-style-type: none"> [1] Gnd [2] 12.13V (In) [3] Gnd [4] 0.8V (FB) [5] 0.94V (Comp) [6] 12.14V (Enable) [7] 2.02V (SS) [8] n/c Case [9] 5.3V (Out) | <p>IC409</p>  <p>PWR_Det +12V in</p> <p>Pin</p> <ul style="list-style-type: none"> [1] Gnd [2] 3.59V [3] 3.84V | <p>IC3703</p>  <p>+1.8V_TU Regulator</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 0V (Gnd) [2] 1.80V (Reset) [3] 3.39V (In) | <p>Q403</p>  <p>+3.3V_Normal Switch</p> <p>Pin</p> <ul style="list-style-type: none"> S 3.48V (In) +3.3V_ST G 0.07V (Enable) D 3.41V (Out) +3.3V_Normal | <p>Q405</p>  <p>DRV_ON Switch</p> <p>Pin</p> <ul style="list-style-type: none"> B 0.02V (INV_CTL) C 3.4V (INV_On) E 0V (Gnd) |
| <p>IC402</p>  <p>+2.5V_Normal Regulator</p> <p>Pin</p> <ul style="list-style-type: none"> [In] 3.4V [Out] 2.5V [Gnd] Gnd | <p>IC410</p>  <p>PWR_Det +12V in</p> <p>Pin</p> <ul style="list-style-type: none"> [1] Gnd [2] 3.59V [3] 3.72V | <p>IC5601</p>  <p>Serial Flash Memory</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 3.34V (Hold) [2] 3.33V (In) +3.3V_ST [3] 0V (n/c) [4] 0V (n/c) [5] 0V (n/c) [6] 0V (n/c) [7] 1.34V (/SPI_CS) [8] 1.15V (SPI_SDO) [9] 0V (WP) [10] 0V (n/c) [11] 0V (n/c) [12] 0V (n/c) [13] 0V (n/c) [14] 0V (n/c) [15] 0V (SPI_SDI) [16] 0V (SPI_SCK) | <p>Q407</p>  <p>PANEL_VCC Drives Q409</p> <p>Pin</p> <ul style="list-style-type: none"> B 0.65V (Pannel_Ctl) C 0.53V (EN) to Q409 E Gnd | <p>Q409</p>  <p>PANEL_VCC Switch</p> <p>Pin</p> <ul style="list-style-type: none"> S 12.0V (In) +12V G 1.79V (Enable) D 11.99V (Out) |
| <p>IC403</p>  <p>+1.10V_VDDC Regulator</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 3.43V_ST (In) [2] 3.43V_ST (In) [3] Gnd [4] Gnd [5] Gnd [6] 0.83V [7] 0.72V [8] 0.5V [9] 1.84V [10] 1.24V (Out) [11] 1.24V (Out) [12] 1.24V (Out) [13] 4.73V [14] n/c [15] 3.48V [16] 3.43V_ST (In) | <p>IC1000</p>  <p>RS232 Data Routing</p> <p>Pin</p> <ul style="list-style-type: none"> [1] 3.53V [2] 5.69V [3] 0V [4] 0V [5] (-5.60V) [6] (-5.63V) [7] n/c (5.64V) [8] n/c (0V) [9] n/c (3.49V) [10] n/c (0V) [11] 3.34V [12] 3.48V [13] 0V [14] (-5.59V) [15] 0V (Gnd) [16] 3.5V (Vcc In) | <p>Q400</p>  <p>+3.3V_Normal Driver for Q403</p> <p>Pin</p> <ul style="list-style-type: none"> B 0.63V (POWER_ON/OFF_1) C 0.05V (Ctrl) E 0V (Gnd) | <p>Q801</p>  <p>HDMI 1-4 Hot Swap</p> <p>Pin</p> <ul style="list-style-type: none"> B 0V C 0V E Gnd | <p>Q401</p>  <p>Power On/Off Driver for Q402</p> <p>Pin</p> <ul style="list-style-type: none"> B 0.66V (RL_ON) C 0.06V (Ctrl) to Q402 E Gnd |
| <p>D200</p>  <p>SOC_Reset Speed Up</p> <p>Pin</p> <ul style="list-style-type: none"> [C1] 0V [C2] 0V [A] 0V (Gnd) | <p>Q402</p>  <p>Amp Mute Driver</p> <p>Pin</p> <ul style="list-style-type: none"> [B] 0V (Amp_Mute) Ctl [C] 3.27V (Amp_Mute) Out [E] Gnd | <p>D821</p>  <p>DDC_SCL1/SDA1 Pull Up</p> <p>Pin</p> <ul style="list-style-type: none"> [A1] V (5V_HDMI_1) [A2] 5.32V (+5V_Normal) [C] 5.14V (Pull_Up) | <p>D822</p>  <p>DDC_SCL2/SDA2 Pull Up</p> <p>Pin</p> <ul style="list-style-type: none"> [A1] 5.32V (5V_HDMI_1) [A2] 5.32V (+5V_Normal) [C] 5.14V (Pull_Up) | |



55LS4500 P703 LVDS Connector Video Waveforms

All LVDS signals are taken with SMPTY Color Bar signal input (1080P) Component Input.
 All LVDS signals are "Differential Pairs". The ones shown are the "Positive" signal of the pair. The Negative signal looks exactly the same but flipped 180°. Scope Settings are 100mV per/division, 2.5uSec per/division.

| | | | | | |
|--|---|--|--|--|--|
| <p style="text-align: center;">Pin 12</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 14</p>  <p style="text-align: center;">384mV p/p</p> | <p style="text-align: center;">Pin 16</p>  <p style="text-align: center;">380mV p/p</p> | <p style="text-align: center;">Pin 19</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 22</p>  <p style="text-align: center;">348mV p/p</p> | <p style="text-align: center;">Pin 24</p>  <p style="text-align: center;">56mV p/p No Waveform</p> |
| <p style="text-align: center;">Pin 28</p>  <p style="text-align: center;">384mV p/p</p> | <p style="text-align: center;">Pin 30</p>  <p style="text-align: center;">356mV p/p</p> | <p style="text-align: center;">Pin 32</p>  <p style="text-align: center;">448mV p/p</p> | <p style="text-align: center;">Pin 35</p>  <p style="text-align: center;">340mV p/p</p> | <p style="text-align: center;">Pin 38</p>  <p style="text-align: center;">449mV p/p</p> | <p style="text-align: center;">Pin 40</p>  <p style="text-align: center;">64mV p/p No Waveform</p> |

55LM6200 T-CON Board Component Voltages

U10 DC-to-DC

| Panel Power Level Shifter | |
|---------------------------|--|
|---------------------------|--|

| Pin | Pin |
|------------------------------|--------------------|
| [1] 7.76V (GCLK1) | [15] (-6.97) (VGL) |
| [2] 7.74V (GCLK2) | [16] 27.96V (VGH) |
| [3] 7.75V (GCLK3) | [17] 27.96V (VGH) |
| [4] 7.74V (GCLK4) | [18] 7.65V (V_COM) |
| [5] 7.76V (GCLK5) | [19] 7.65V |
| [6] 7.74V (GCLK6) | [20] 7.62V |
| [7] 2.5V | [21] 16.9V |
| [8] 27.9V (VGH_R) | [22] Gnd |
| [9] (-6.97) (VGH_F) | [23] 3.3V (VCC) |
| [10] *(-6.95V to 27.9V) (VGH | [24] 0V |
| [11] *(-6.95V to 27.9V) (VGH | [25] 0V |
| [12] (-6.91) (VST) | [26] 0.7V |
| [13] (-6.88) (GIP_RST) | [27] 1.27V |
| [14] (-6.97) | [28] 3.24V |

* EVERY Second



U11 DC-to-DC

| T-CON and Panel Power DC-to-DC Conv | |
|-------------------------------------|--|
|-------------------------------------|--|

| Pin | Pin |
|------------------------|------------------------|
| [1] 1.81V | [25] 4.95V |
| [2] 1.86V | [26] 0.53V |
| [3] Gnd | [27] 3.3V |
| [4] 3.3V | [28] 3.3V |
| [5] 1.79V | [29] 4.99V |
| [6] 1.81V | [30] 1.3V |
| [7] Gnd | [31] 16.4V |
| [8] 3.31V (VCC) | [32] 27.94V |
| [9] 3.31V (VCC) | [33] 5.69V |
| [10] 0V | [34] 8.21V |
| [11] 11.7V (Panel_VCC) | [35] (-6.98V) (VGL_FB) |
| [12] 11.7V (Panel_VCC) | [36] 1.19V |
| [13] 11.7V (Panel_VCC) | [37] 13.86V |
| [14] 11.7V (Panel_VCC) | [38] 12.85V |
| [15] 8.45V (H_VDD) | [39] 10.91V |
| [16] 8.44V (H_VDD_FB) | [40] 6.55V |
| [17] Gnd | [41] 4.6V |
| [18] Gnd | [42] 3.5V |
| [19] Gnd | [43] 7.65V |
| [20] 11.7V (Panel_VCC) | [44] 7.64V |
| [21] 11.7V (Panel_VCC) | [45] 7.63V |
| [22] 16.97V | [46] 7.61V (VCOM_RFB) |
| [23] 16.97V (VDD) | [47] 1.61V |
| [24] Gnd | [48] Gnd |



U5



| Buffer | |
|--------|--|
|--------|--|

| Pin | Pin |
|-----------|-----------|
| [1] Gnd | [1] Gnd |
| [2] Gnd | [2] Gnd |
| [3] Gnd | [3] Gnd |
| [4] Gnd | [4] Gnd |
| [5] 3.31V | [5] 3.31V |
| [6] 3.31V | [6] 3.31V |
| [7] 3.31V | [7] 3.31V |
| [8] 3.31V | [8] 3.31V |

Q1



| VDD Rectifier | |
|---------------|--|
|---------------|--|

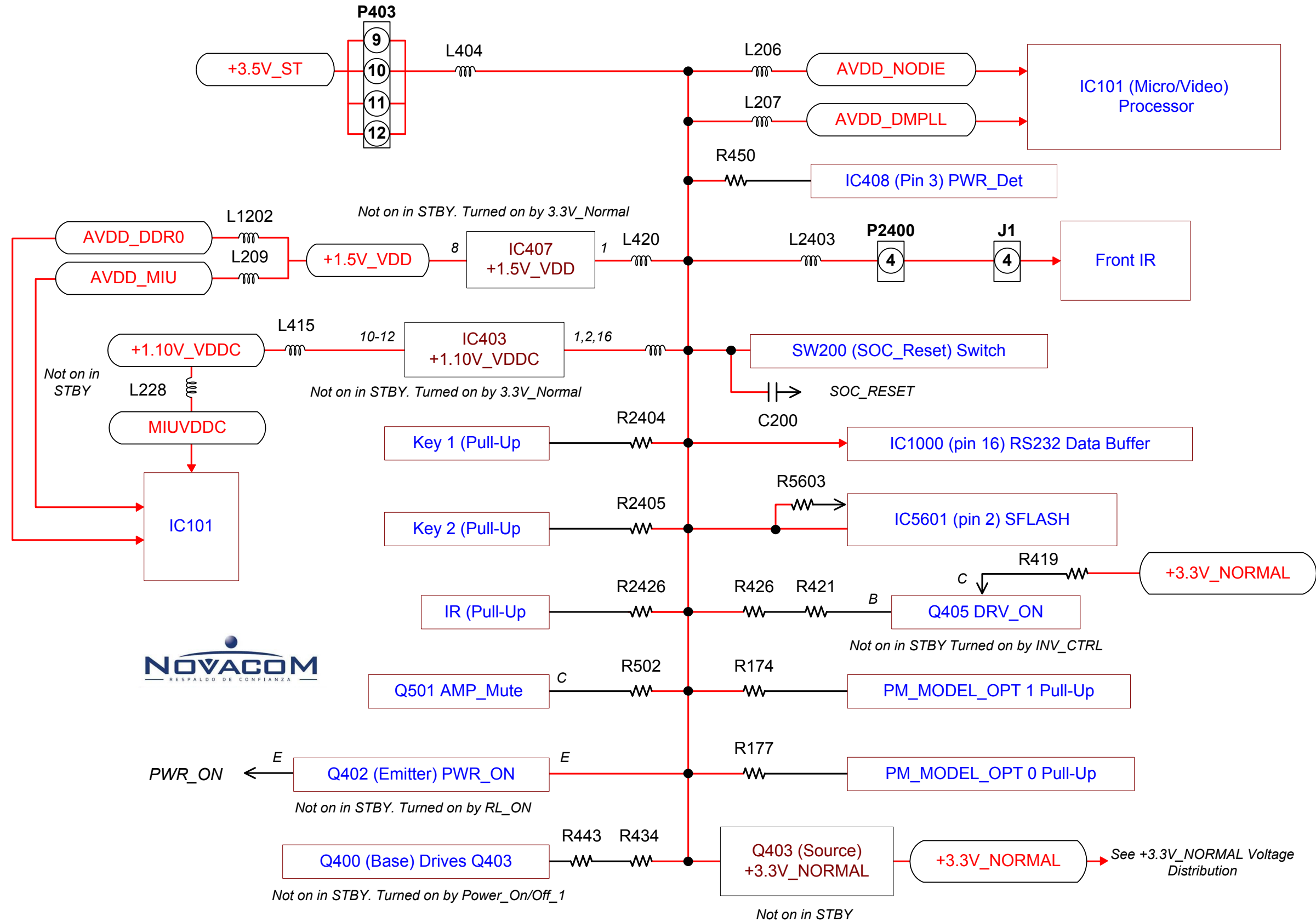
| Pin | Pin |
|-------------------|-------------------|
| [1] 20.2V | [1] 20.2V |
| [2] 16.38V | [2] 16.38V |
| [3] 16.93V Output | [3] 16.93V Output |
| [4] 12.98V | [4] 12.98V |
| [5] 12.98V | [5] 12.98V |
| [6] 12.95V | [6] 12.95V |

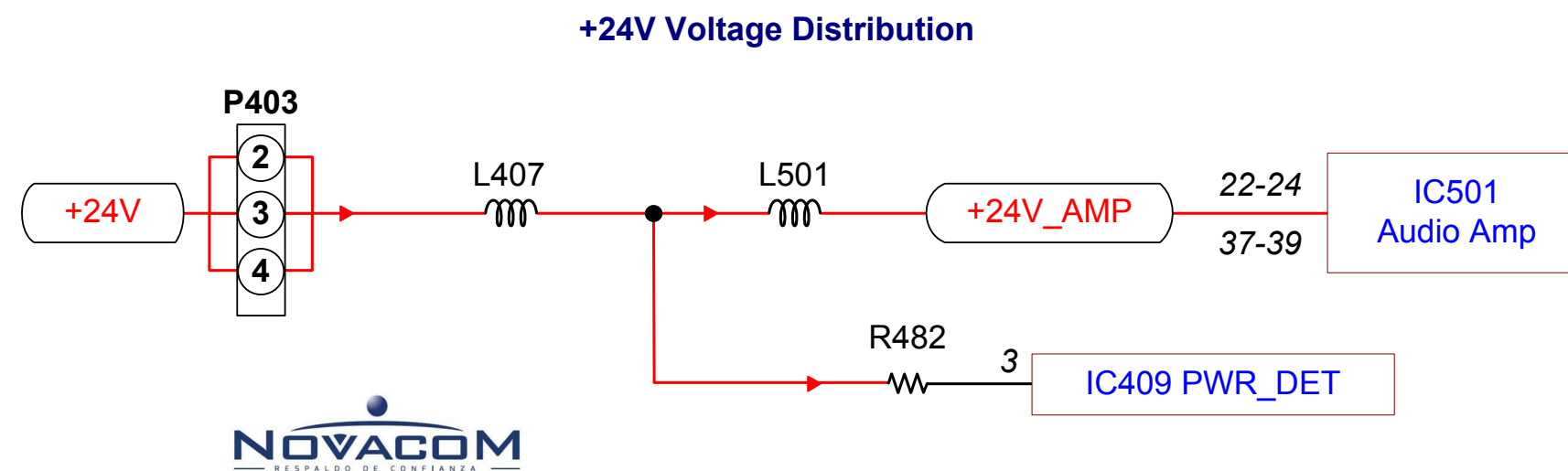
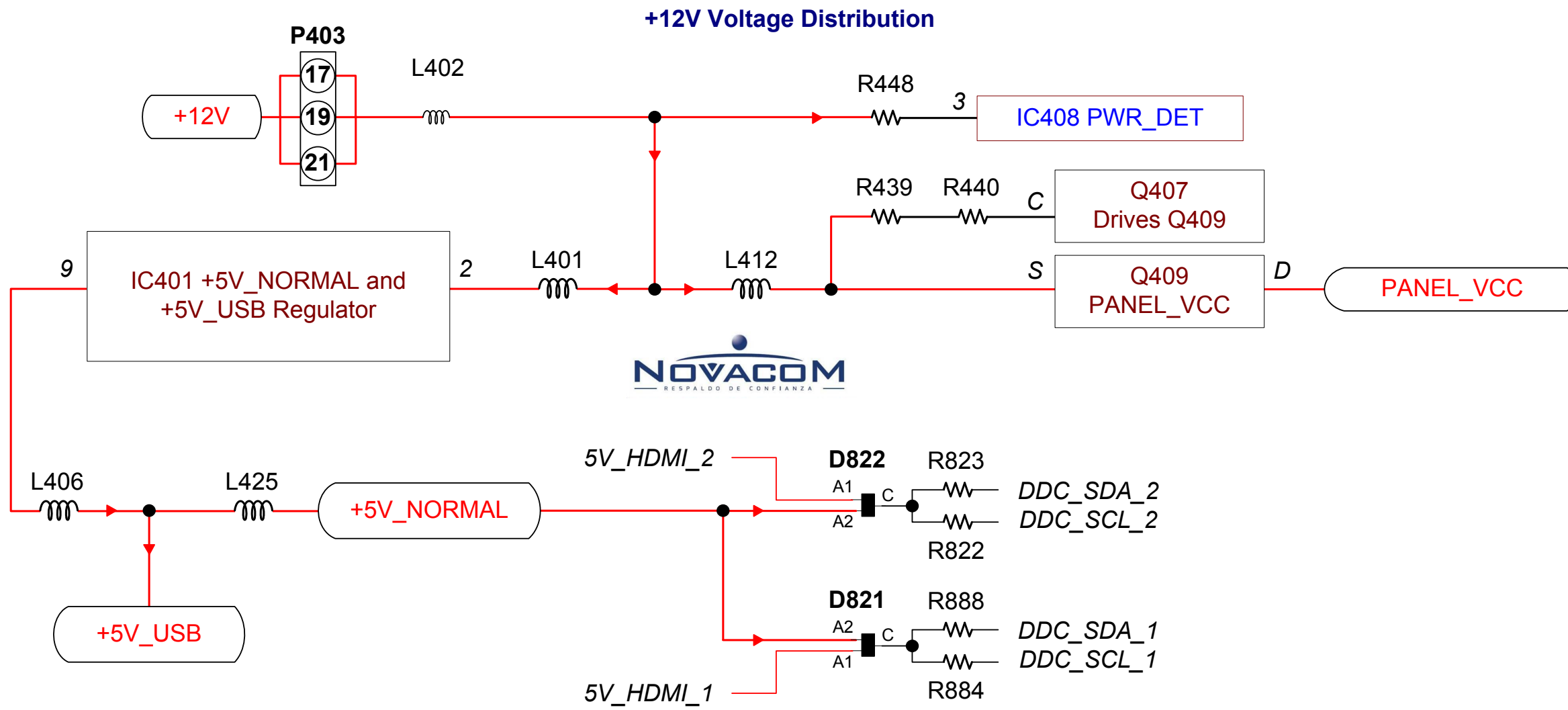
Q2



| VGL Rectifier | |
|---------------|--|
|---------------|--|

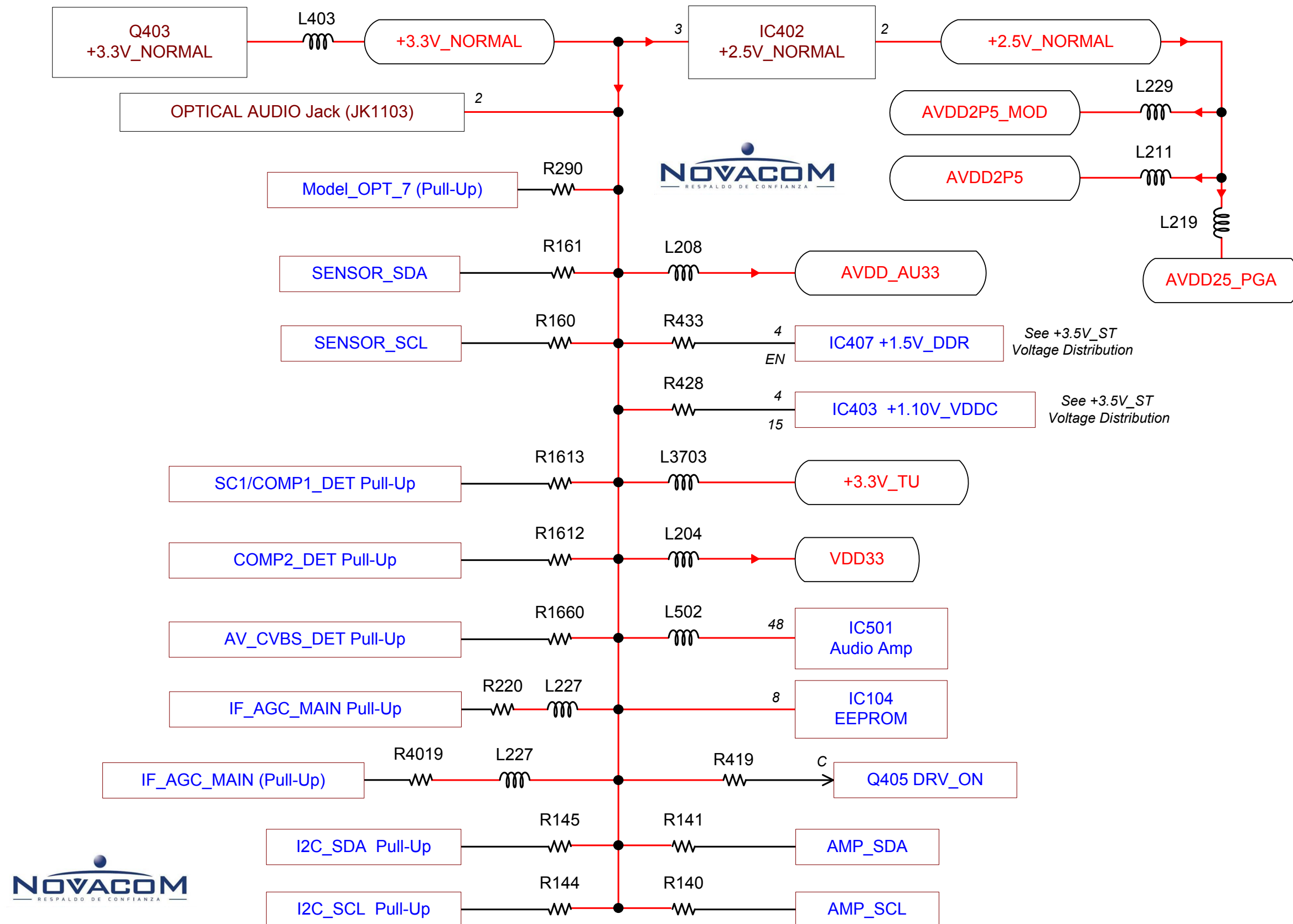
| Pin | Pin |
|------------------|------------------|
| [1] 0.56V | [1] 0.56V |
| [2] 1.18V | [2] 1.18V |
| [3] (-2.9V) | [3] (-2.9V) |
| [4] (-7V) Output | [4] (-7V) Output |
| [5] 2.97V | [5] 2.97V |
| [6] 2.97V | [6] 2.97V |

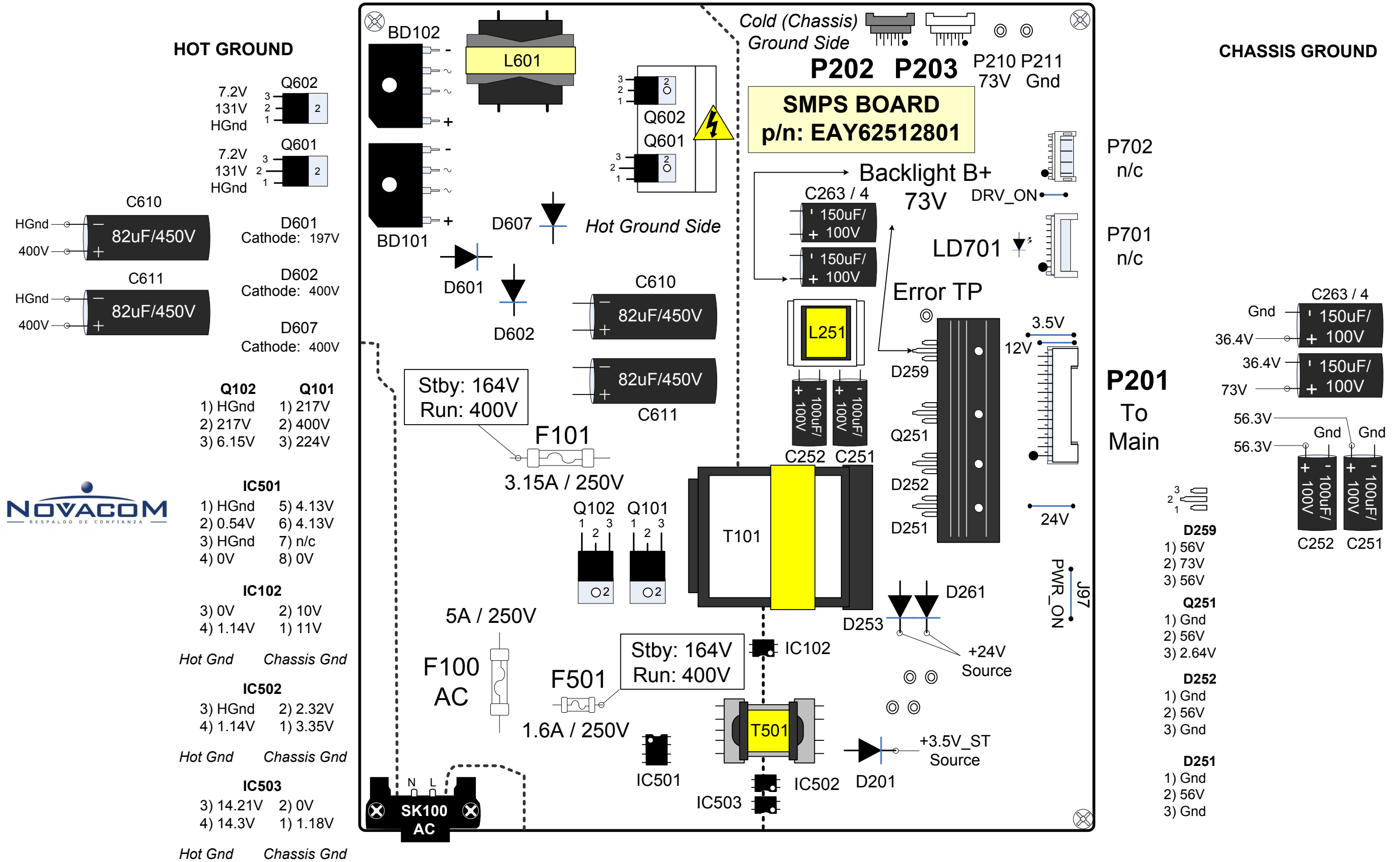




55LS4500 Main Board (+3.3V_Normal) Voltage Distribution

From +3.5V_ST Voltage Distribution





55UB950 INTERCONNECT DIAGRAM

PANEL p/n: EAJ62573501

55UB950 (2014) Interconnect Section 14

P801 Black "SMPS Board" to the "Backlights"

| Pin | Label | Run | Diode Check | TP |
|-----|-------|-------------|-------------|------|
| 1 | VC_6 | 1.69V~20.1V | OL | EL85 |
| 2 | VC_5 | 1.73V~20.5V | OL | EL84 |
| 3 | VC_4 | 1.45V~20.1V | OL | EL86 |
| 4 | VC_3 | 1.51V~20.1V | OL | EL83 |
| 5 | VC_2 | 1.36V~20.3V | OL | EL87 |
| 6 | VC_1 | 1.24V~20.4V | OL | EL82 |
| 7 | N/C | n/c | n/c | |
| 8 | LED+ | 73.2V-74.3V | OL | P210 |

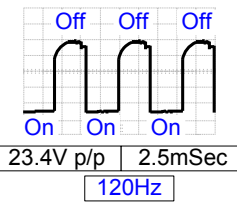
P802 White "SMPS Board" to the "Backlights"

| PIN | LABEL | RUN | Diode ✓ | TP |
|-----|-------|-------------|---------|------|
| 1 | LED+ | 73.2V-74.3V | OL | P210 |
| 2 | N/C | n/c | n/c | |
| 3 | VC_7 | 1.10V~20.1V | OL | EL79 |
| 4 | VC_8 | 1.49V~20.4V | OL | EL76 |
| 5 | VC_9 | 1.31V~20.0V | OL | EL80 |
| 6 | VC_10 | 1.51V~20.3V | OL | EL77 |
| 7 | VC_11 | 1.53V~20.3V | OL | EL81 |
| 8 | VC_12 | 1.79V~20.3V | OL | EL78 |

P201 "SMPS Board" to "MAIN Board" P13002

| Pin | Label | STBY | Run | Diode Check |
|-------|------------|-------|-------------|-------------|
| 28 | *Vsync | 0V | 0.02V | OL |
| 27 | *SCLK | 0V | 0.07V | OL |
| 26 | *Gnd | Gnd | Gnd | Gnd |
| 25 | *SCLK | 0V | 0.04V | OL |
| 23-24 | Gnd | Gnd | Gnd | Gnd |
| 18-22 | 24V | 0V | 24.26V | 1.12V |
| 16-17 | Gnd | Gnd | Gnd | Gnd |
| 11-15 | 12V | 0V | 11.66V | 0.44V |
| 9-10 | Gnd | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.57V | 3.55V | OL |
| 6 | Gnd | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.57V | 3.55V | OL |
| 4 | (4) P-DIM2 | 0V | 1.12V | OL |
| 3 | (3) P-DIM | 0V | 0.16V~3.25V | OL |
| 2 | (2) DRV-ON | 0V | 3.14V | 1.66V |
| 1 | (1) PWR-ON | 0V | 3.43V | 1.15V |

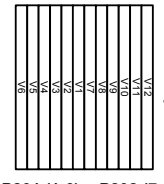
Note: If a part of the picture is exhibiting a dimmer backlight level than the other or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not, Check the P-DIM level, it should rise with the percentage shown on screen.



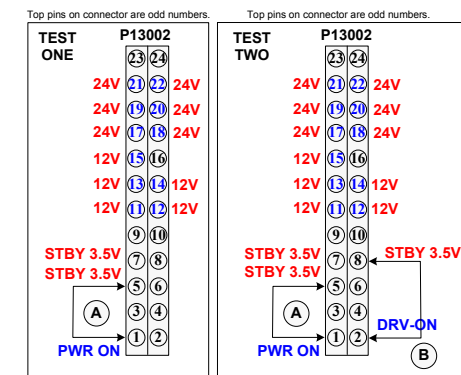
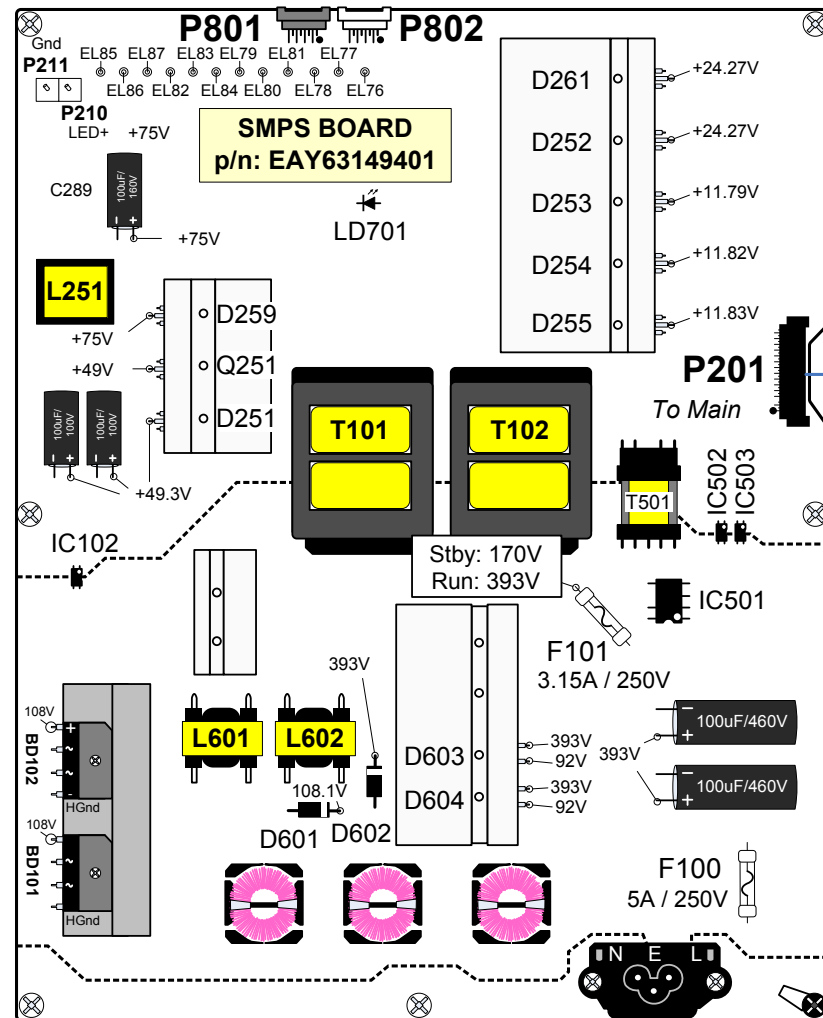
You can also test any of the 12 blocks functionality by grounding the return path signal (using 1KΩ resistor).

LED ONE BLOCK TEST (DIM OR DARK PICTURE AREA):
Turn the Brightness, Contrast and Backlights all the way up. Confirm 64V on P210. Confirm P-DIM is approx. 3V. You can turn on a block of LEDs by using a 100 ohm resistor from any test point EL76 – EL87 to Ground.
The Power Supply must be producing the 75V for the Backlight B+.
Failure to use a resistor will damage the panels backlight and may also damage the power supply.

BACKLIGHT STRUCTURE



Each strip has 12 LEDs
144 Total LEDs



Note: P201 is actually a 28 pin connector, but only the 24 pins going to the Main board are shown here.

WARNING: Do not add or remove jumpers with Power Applied.

SMPS TEST 1: To Force Power Supply On without the Main Board.
Disconnect the P13002 on the Main board.
(A) Jump pin 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main.
(47.85V Backlight power but the Backlights are not on at this time).
LED Ground Return Line is (0.62V).
Remove AC power. Leave the jumper in place.

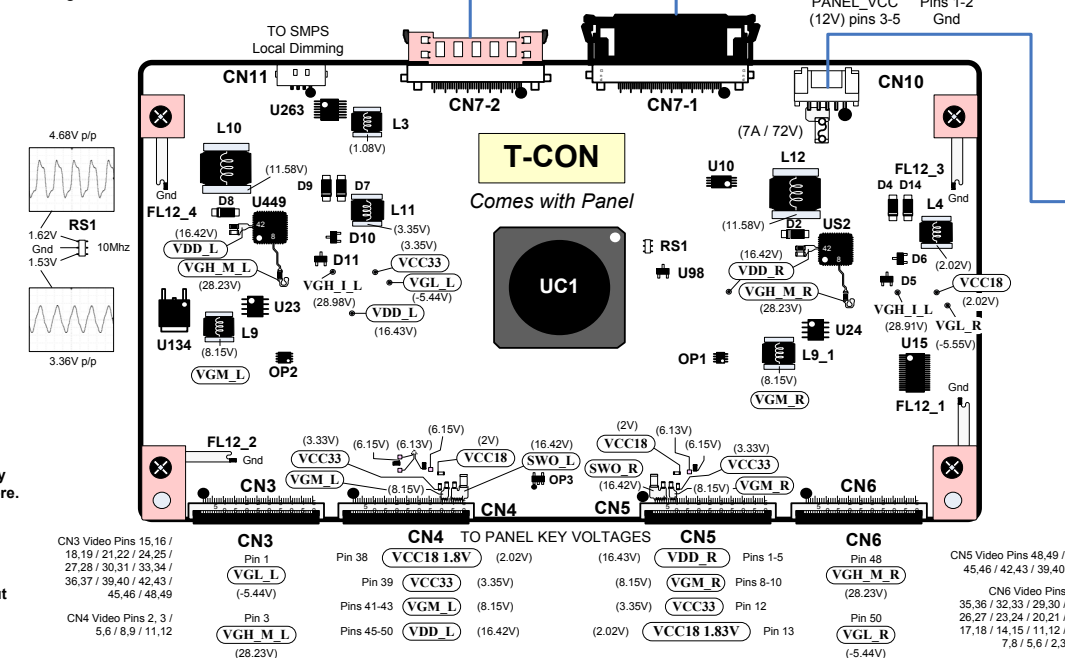
SMPS TEST 2: (Turning on the Backlights)
(B) Jump pin 8 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now read to 74V.
LED Ground Return Line is (1.12-1.83V). P-DIM P201 (pin 4) reads 3.52V.

If P801 is disconnected, the backlight power will start at 49.7V, then jump to 79V and then fall back to 49.85V. Warning: Backlight power is slow to bleed down after power off, connected or disconnected.

144 Total LEDs, 72 LEDs per/Strip.
2 boards per/strip. (12 LEDs per/board) 12 columns.
6 on the left are controlled by P801
6 on the right are controlled by P802

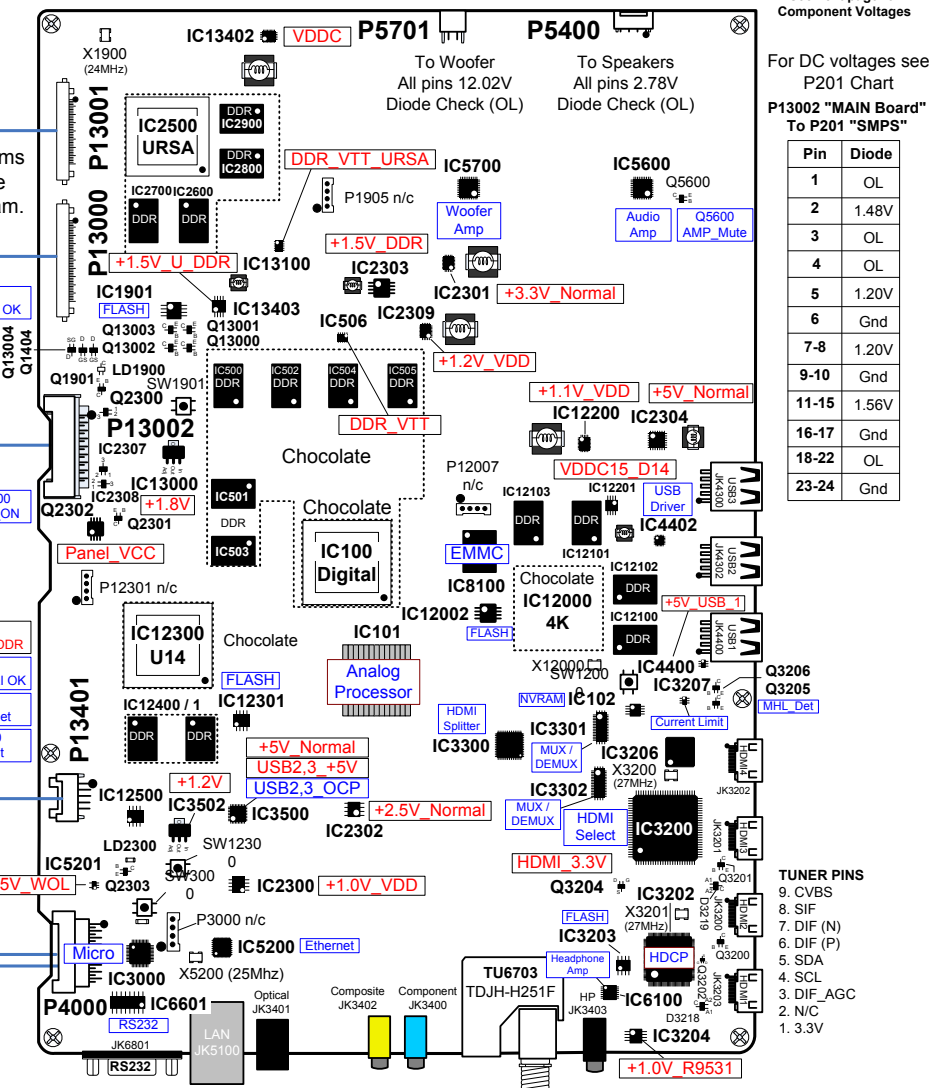
Note: To run the Panel Test (Testing the T-CON without the Main board), simply unplug CN7-1 and CN7-2. Apply power to the set. (Backlights and Power Supply should already be working). T-CON outputs color patterns on the screen. This test confirms the T-CON, Power Supply, Panel and Backlights are working normally.

WARNING:
Be sure to install the screws in the T-CON board before applying power. Damage to the board will occur.



WiFi / M-Remote
Bottom Center of Set Front IR
p/n: EAB63129202

Front IR/Joy Stick
Bottom Center of Set Front IR
p/n: MAZ64123603



P4000 "Main" To "Joy Stick" & "M-Remote & WiFi Board" J1


| Pin | Label | STBY | Run | Diode ✓ |
|-----|---------------|-------|-------|---------|
| 1 | Gnd | Gnd | Gnd | Gnd |
| 2 | 3.5V_WOL | 0V | 3.51V | 1.12V |
| 3 | BT_RESET | 2.34V | 3.31V | OL |
| 4 | WIFI_DM | 0V | 0V | 1.18V |
| 5 | N/C | n/c | n/c | n/c |
| 6 | WIFI_DP | 0V | 1.16V | 1.18V |
| 7 | WOL (WiFi On) | 0V | 0V | 1.93V |
| 8 | Gnd | Gnd | Gnd | Gnd |

| Pin | Label | STBY | Run | Diode ✓ |
|-----|---------|-------|-------|---------|
| 9 | Eye_SDA | 3.55V | 3.54V | 1.95V |
| 10 | Gnd | Gnd | Gnd | Gnd |
| 11 | Eye_SCL | 3.55V | 3.54V | 1.95V |
| 12 | Key 1 | 3.54V | 3.54V | 1.94V |
| 13 | Gnd | Gnd | Gnd | Gnd |
| 14 | Key 2 | 3.54V | 3.54V | 1.94V |
| 15 | IR | 3.52V | 3.50V | 1.85V |
| 16 | 3.5V_ST | 3.55V | 3.53V | 1.20V |
| 17 | LED_R | 2.78V | 0V | OL |
| 18 | Gnd | Gnd | Gnd | Gnd |

IR 3.76V p/p


55UB9500 Main Board Component Voltages

IC102 NVRAM Memory




| Pin | Voltage |
|-----|---------|
| [1] | Gnd |
| [2] | Gnd |
| [3] | Gnd |
| [4] | Gnd |
| [5] | 3.26V |
| [6] | 3.27V |
| [7] | Gnd |
| [8] | 3.28V |

IC2303 +1.5V_DDR Regulator




| Pin | Voltage |
|-----|------------------|
| [1] | 3.47V (Enable) |
| [2] | 3.77V |
| [3] | 5.22V |
| [4] | 2.45V |
| [5] | Gnd |
| [6] | 1.57V (Out) |
| [7] | 6.5V |
| [8] | 12V (+11.61V In) |

IC3304 +1.2V Regulator




| Pin | Voltage |
|-------|------------|
| [Gnd] | 0V (Gnd) |
| [Out] | 1.2V (Out) |
| [In] | 3.31V (In) |

IC12201 VDDC15_D14 Regulator




| Pin | Voltage |
|-----|----------------|
| [1] | 3.47V (Enable) |
| [2] | 0.77V |
| [3] | 5.27V |
| [4] | 2.51V |
| [5] | Gnd |
| [6] | 1.53V (Out) |
| [7] | 6.40V |
| [8] | 11.57V (In) |

Q1404 LockA_N Switch




| Pin | Voltage |
|-----|---------|
| [G] | 1.80V |
| [S] | 0.56V |
| [D] | 0.56V |

Q3204 HDMI_3.3V Switch




| Pin | Voltage |
|-----|----------------|
| [G] | 5.09V (In) |
| [S] | 3.28V (Enable) |
| [D] | 3.29V (Out) |

IC506 DDR_VTT Regulator




| Pin | Voltage |
|------|-----------------|
| [1] | 0.73V |
| [2] | 1.5V |
| [3] | 0.74V VTT (In) |
| [4] | Gnd |
| [5] | 0.74V |
| [6] | 0.74V |
| [7] | 3.33V (Enable) |
| [8] | Gnd |
| [9] | n/c |
| [10] | 3.33V VTT (Out) |

IC2307 PWR_Det 12V Sense




| Pin | Voltage |
|-----|---------------|
| [1] | Gnd |
| [2] | 3.54V (Reset) |
| [3] | 3.57V (In) |

IC4400 +5V_USB_1 Regulator




| Pin | Voltage |
|-----|------------------|
| [1] | 5.09V (In) |
| [2] | Gnd |
| [3] | 3.27V (Enable) |
| [4] | 2.96V (USB_OCD1) |
| [5] | 0.41V |
| [6] | 5.09V (Out) |

IC12301 SPI FLASH Memory




| Pin | Voltage |
|-----|------------|
| [1] | 3.31V |
| [2] | 0.17V |
| [3] | 3.31V |
| [4] | Gnd |
| [5] | 0.31V |
| [6] | 0V |
| [7] | 3.31V |
| [8] | 3.31V (In) |

Q1901 Drives LD1900




| Pin | Voltage |
|-----|---------|
| [E] | 1.18V |
| [B] | 0.56V |
| [C] | Gnd |

Q3205 MHL Det




| Pin | Voltage |
|-----|-------------|
| [B] | 0V |
| [C] | 3.52V (Out) |
| [E] | 0V |

IC2308 PWR_Det 20V Sense (Not Used)




| Pin | Voltage |
|-----|------------|
| [1] | Gnd |
| [2] | 0V (Reset) |
| [3] | 0V (In) |

IC5201 +3.5V_WOL Regulator




| Pin | Voltage |
|-----|-----------------|
| [1] | 3.52V (Out) |
| [2] | Gnd |
| [3] | 0.01V n/c |
| [4] | 3.51V (OCP Out) |
| [5] | 3.51V (Vcc In) |

IC12500 +1.5V_U14_DDR Regulator




| Pin | Voltage |
|-----|----------------|
| [1] | 3.50V (Enable) |
| [2] | 0.77V |
| [3] | 5.67V |
| [4] | 2.54V |
| [5] | Gnd |
| [6] | 1.53V (Out) |
| [7] | 6.48V |
| [8] | 11.70V (In) |

Q2300 PWR_On Switch




| Pin | Voltage |
|-----|---------|
| [1] | 3.52V |
| [2] | 2.84V |
| [3] | 3.41V |

Q3206 MHL Det




| Pin | Voltage |
|-----|----------|
| [B] | 3.52V |
| [C] | 0V (Out) |
| [E] | 3.52V |

IC1901 SPI FLASH Memory




| Pin | Voltage |
|-----|------------|
| [1] | 3.27V |
| [2] | 3.25V |
| [3] | 0V |
| [4] | Gnd |
| [5] | 3.27V |
| [6] | 0V |
| [7] | 3.27V |
| [8] | 3.27V (In) |

IC3203 FLASH Memory




| Pin | Voltage |
|-----|------------|
| [1] | 0V |
| [2] | 0V |
| [3] | 0V |
| [4] | Gnd |
| [5] | 0V |
| [6] | 0V |
| [7] | 3.28V |
| [8] | 3.31V (In) |

IC6601 RS232 Data




| Pin | Voltage |
|------|--------------------|
| [1] | 3.52V |
| [2] | 5.72V |
| [3] | 0V |
| [4] | 0.02V |
| [5] | -5.63V |
| [6] | -5.66V |
| [7] | n/c |
| [8] | n/c |
| [9] | n/c |
| [10] | n/c |
| [11] | 3.29V |
| [12] | 3.51V |
| [13] | 0V |
| [14] | -5.67V |
| [15] | Gnd |
| [16] | 3.52V (3.5V_ST In) |

IC13000 +1.8V Regulator




| Pin | Voltage |
|-------|-------------|
| [Gnd] | 0.55V (Adj) |
| [Out] | 1.8V (Out) |
| [In] | 3.31V (In) |

Q2301 Panel_VCC CTRL Drives Q2302




| Pin | Voltage |
|-----|---------|
| [B] | 0.61V |
| [C] | 0.03V |
| [E] | Gnd |

Q5600 Amp Mute Driver




| Pin | Voltage |
|-----|---------|
| [B] | 0V |
| [C] | 3.27V |
| [E] | Gnd |

IC2300 +1.0V_VDD Regulator




| Pin | Voltage |
|-----|----------------|
| [1] | 3.44V (Enable) |
| [2] | 0.77V |
| [3] | 3.45V |
| [4] | 5.42V |
| [5] | Gnd |
| [6] | 1.02V (Out) |
| [7] | 6.41V |
| [8] | 12V (In) |

IC3204 +1.0V_R9531 Regulator




| Pin | Voltage |
|-----|----------------|
| [1] | n/c |
| [2] | 3.23V |
| [3] | 3.31V (In) |
| [4] | 5.09V (Enable) |
| [5] | n/c |
| [6] | 1.0V (Out) |
| [7] | 0.6V |
| [8] | Gnd |

IC13100 DDR_VTT_URSA Regulator




| Pin | Voltage |
|------|-----------------|
| [1] | 0.73V |
| [2] | 1.53V |
| [3] | 0.76V VTT (In) |
| [4] | Gnd |
| [5] | 0.76V |
| [6] | 0.76V |
| [7] | 3.28V (Enable) |
| [8] | Gnd |
| [9] | n/c |
| [10] | 3.28V VTT (Out) |

Q2302 Panel_VCC Switch




| Pin | Voltage |
|-----|----------------|
| [1] | 11.69V (In) |
| [2] | 11.69V (In) |
| [3] | 11.69V (In) |
| [4] | 1.81V (Enable) |
| [5] | 11.69V (Out) |
| [6] | 11.69V (Out) |
| [7] | 11.69V (Out) |
| [8] | 11.69V (Out) |

Q13000 Drives Q13002




| Pin | Voltage |
|-----|---------|
| [E] | Gnd |
| [B] | 0.25V |
| [C] | 1.61V |

IC3207 +5V_HDMI_4 Regulator




| Pin | Voltage |
|-----|--------------|
| [1] | 3.09V (In) |
| [2] | Gnd |
| [3] | 0V (Enable) |
| [4] | 0V (MHL_OCP) |
| [5] | 0V |
| [6] | 0.0V (Out) |

IC12002 FLASH Memory




| Pin | Voltage |
|-----|------------|
| [1] | 3.28V |
| [2] | 0V |
| [3] | 2.46V |
| [4] | Gnd |
| [5] | 0.11V |
| [6] | 0V |
| [7] | 3.28V |
| [8] | 3.31V (In) |

Q12303 Drives LD2300




| Pin | Voltage |
|-----|---------|
| [E] | Gnd |
| [B] | 0.64V |
| [C] | 0.02V |

Q13002 Activates Vx1_LOCKn_0




| Pin | Voltage |
|-----|---------|
| [E] | Gnd |
| [B] | 0.64V |
| [C] | 0.09V |

IC2302 (+2.5V_NORMAL) Regulator




| Pin | Voltage |
|-----|--------------|
| [1] | 3.35V (in) |
| [2] | n/c |
| [3] | 5.12V (in) |
| [4] | 3.53V (ctrl) |
| [5] | Gnd |
| [6] | 4.92V |
| [7] | 0.81V |
| [8] | 2.56V (out) |

Q3200 / 01 HDMI3 Hot Swap




| Pin | Voltage |
|-----|---------|
| [B] | 0V |
| [C] | 0V |
| [E] | Gnd |

Q13003 Activates Vx1_LOCKn_V




| Pin | Voltage |
|-----|---------|
| [E] | Gnd |
| [B] | 0.64V |
| [C] | 0.02V |

Q3202 Reset_N Switch for IC3202




| Pin | Voltage |
|-----|---------|
| [B] | 3.28V |
| [C] | 3.46V |
| [E] | 3.28V |

Q13004 I2C_SCL1 Switch




| Pin | Voltage |
|-----|---------|
| [G] | 3.24V |
| [S] | 3.31V |
| [D] | 3.29V |

IC13403 +1.5V_U_DDR Regulator



| Pin | Voltage |
|-----|----------------|
| [1] | 3.50V (Enable) |
| [2] | 0.77V |
| [3] | 5.21V |
| [4] | 2.50V |
| [5] | Gnd |
| [6] | 1.55V (Out) |
| [7] | 6.54V |
| [8] | 11.70V (In) |

Q13005 I2C_SDA1 Switch

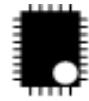


| Pin | Voltage |
|-----|---------|
| [G] | 3.29V |
| [S] | 3.32V |
| [D] | 3.29V |



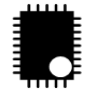
IC2301
+3.3V_Normal Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.17V | [15] 11.65V (In) |
| [2] 5.13V | [16] 11.65V (In) |
| [3] 3.53V (Enable) | [17] 11.65V (In) |
| [4] 8.42V | [18] n/c |
| [5] n/c | [19] 11.65V (In) |
| [6] 3.36V (Out) | [20] 5.14V |
| [7] 3.36V (Out) | [21] 5.12V |
| [8] 3.36V (Out) | [22] Gnd |
| [9] 3.36V (Out) | [23] 0.62V |
| [10] Gnd | [24] 3.35V |
| [11] Gnd | [25] 0.43V |
| [12] Gnd | [26] n/c |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |



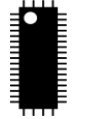
IC2309
+5V_Normal Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.18V | [15] 11.59V (In) |
| [2] 5.18V | [16] 11.59V (In) |
| [3] 3.51V (Enable) | [17] 11.59V (In) |
| [4] 6.44V | [18] 11.59V (In) |
| [5] n/c | [19] 11.59V (In) |
| [6] 1.29V (Out) | [20] 5.18V |
| [7] 1.29V (Out) | [21] 5.18V |
| [8] 1.29V (Out) | [22] Gnd |
| [9] 1.29V (Out) | [23] 0.61V |
| [10] Gnd | [24] 1.26V |
| [11] Gnd | [25] 0.41V |
| [12] Gnd | [26] Gnd |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |



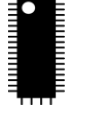
IC3301
MUX/ DEMUX

| Pin | Pin |
|----------------|------------|
| [1] 3.31V (In) | [22] 2.94V |
| [2] 3.28V | [23] 2.94V |
| [3] 4.88V | [24] 2.94V |
| [4] 4.88V | [25] 2.94V |
| [5] 2.98V | [26] 2.94V |
| [6] 2.98V | [27] 2.94V |
| [7] 2.98V | [28] 2.94V |
| [8] 2.98V | [29] 2.94V |
| [9] n/c | [30] n/c |
| [10] 2.98V | [31] 2.94V |
| [11] 2.98V | [32] 2.94V |
| [12] 2.98V | [33] 2.94V |
| [13] 2.98V | [34] 2.94V |
| [14] n/c | [35] 2.94V |
| [15] n/c | [36] 2.94V |
| [16] 3.28V | [37] 2.94V |
| [17] 3.28V | [38] 2.94V |
| [18] n/c | [39] 4.88V |
| [19] n/c | [40] 4.88V |
| [20] n/c | [41] 3.28V |
| [21] n/c | [42] 3.28V |



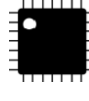
IC3302
MUX/ DEMUX

| Pin | Pin |
|----------------|------------|
| [1] 3.31V (In) | [22] 2.94V |
| [2] 3.28V | [23] 2.94V |
| [3] 4.88V | [24] 2.94V |
| [4] 4.88V | [25] 2.94V |
| [5] 2.98V | [26] 2.94V |
| [6] 2.98V | [27] 2.94V |
| [7] 2.98V | [28] 2.94V |
| [8] 2.98V | [29] 2.94V |
| [9] n/c | [30] n/c |
| [10] 2.98V | [31] 2.94V |
| [11] 2.98V | [32] 2.94V |
| [12] 2.98V | [33] 2.94V |
| [13] 2.98V | [34] 2.94V |
| [14] n/c | [35] 2.94V |
| [15] n/c | [36] 2.94V |
| [16] 3.28V | [37] 2.94V |
| [17] 3.28V | [38] 2.94V |
| [18] n/c | [39] 4.88V |
| [19] n/c | [40] 4.88V |
| [20] n/c | [41] 3.28V |
| [21] n/c | [42] 3.28V |



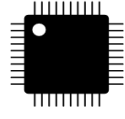
IC2304
+5V_Normal Regulator

| Pin | Pin |
|------------------------|-------------------|
| [1] 24.68V (In) | [15] 5.04V (OCP2) |
| [2] 24.68V (In) | [16] 5.09V |
| [3] 24.68V (In) | [17] 5.09V |
| [4] Gnd | [18] 12.04V |
| [5] Gnd | [19] 5.09V (Out) |
| [6] Gnd | [20] 5.09V (Out) |
| [7] 6.25V | [21] 5.09V (Out) |
| [8] 6.25V | [22] 1.94V |
| [9] 3.53V (Enable) | [23] 0.60V |
| [10] 5.09V (Out USB2) | [24] 0.35V |
| [11] 5.09V (Out USB3) | [25] 1.24V |
| [12] 5.09V (USB2 Ctrl) | [26] 0.45V |
| [13] 5.09V (USB3 Ctrl) | [27] 0.45V |
| [14] 5.04V (OCP2) | [28] Gnd |



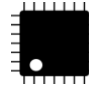
IC3000
Micro Processor

| Pin | Pin |
|------------|------------|
| [1] 3.28V | [25] 0V |
| [2] 3.28V | [26] 3.53V |
| [3] 0.0V | [27] 3.53V |
| [4] 2.09V | [28] 0.03V |
| [5] 0.06V | [29] 0.1V |
| [6] 3.5V | [30] 0V |
| [7] 3.49V | [31] 3.34V |
| [8] 3.53V | [32] 3.53V |
| [9] 0V | [33] 3.53V |
| [10] 3.53V | [34] 3.75V |
| [11] 3.53V | [35] 0V |
| [12] 0V | [36] 0V |
| [13] 3.51V | [37] 0.02V |
| [14] 3.68V | [38] 0V |
| [15] 3.53V | [39] 3.53V |
| [16] 0V | [40] 3.53V |
| [17] 3.48V | [41] 0.65V |
| [18] 3.53V | [42] 0.13V |
| [19] 3.29V | [43] 0V |
| [20] 3.32V | [44] 0V |
| [21] 3.53V | [45] 0V |
| [22] 0V | [46] 2.09V |
| [23] 0V | [47] Gnd |
| [24] 0.1V | [48] 3.53V |




IC3500
+5V_Normal Regulator

| Pin | Pin |
|----------------------|-------------------|
| [1] 24.68V (In) | [15] 5.04V (OCP2) |
| [2] 24.68V (In) | [16] 5.09V |
| [3] 24.68V (In) | [17] 5.09V |
| [4] Gnd | [18] 12.04V |
| [5] Gnd | [19] 5.09V (Out) |
| [6] Gnd | [20] 5.09V (Out) |
| [7] 6.25V | [21] 5.09V (Out) |
| [8] 6.25V | [22] 1.94V |
| [9] 3.53V (Enable) | [23] 0.60V |
| [10] 5.09V (Out USE) | [24] 0.35V |
| [11] 5.09V (Out USE) | [25] 1.24V |
| [12] 5.09V (USB2 C) | [26] 0.45V |
| [13] 5.09V (USB3 C) | [27] 0.45V |
| [14] 5.04V (OCP2) | [28] Gnd |






IC4402
USB 3 Processor

| Pin | Voltage |
|------|-----------|
| [1] | n/c |
| [2] | n/c |
| [3] | 3.3V (In) |
| [4] | 3.3V |
| [5] | 3.3V |
| [6] | n/c |
| [7] | 3.27V |
| [8] | 3.27V |
| [9] | Gnd |
| [10] | 1.45V |
| [11] | 1.45V |
| [12] | Gnd |
| [13] | 3.3V (In) |
| [14] | 0.08V |
| [15] | 0V |
| [16] | 1.63V |
| [17] | 3.23V |
| [18] | n/c |
| [19] | 3.26V |
| [20] | 3.26V |
| [21] | Gnd |
| [22] | 2.63V |
| [23] | 2.63V |
| [24] | n/c |

IC5600
Audio Amp

| Pin | Voltage |
|---------|----------------|
| [1] | n/c |
| [2] | 1.29V |
| [3] | n/c |
| [4] | Gnd |
| [5] | n/c |
| [6] | 1.27V |
| [7] | 1.14V |
| [8] | 1.63V |
| [9] | 1.63V |
| [10] | 0V |
| [11] | 3.09V |
| [12] | 3.27V (Mute) |
| [13] | n/c |
| [14] | 1.36V |
| [15] | n/c |
| [16] | 7.46V |
| [17] | Gnd |
| [18] | 2.77V (Out R-) |
| [19-20] | 23.89V (R B+) |
| [21] | (Out R-) |
| [22] | Gnd |
| [23] | 7.47V |
| [24] | 5.17V |
| [25] | Gnd |
| [26] | n/c |
| [27] | 5.16V |
| [28] | 7.46V |
| [29] | Gnd |
| [30] | 2.76V (Out L-) |
| [31-32] | 23.89V (L B+) |
| [33] | 2.76V (Out L+) |
| [34] | Gnd |
| [35] | 7.45V |
| [36] | 3.20V (Reset) |
| [37] | Gnd |
| [38] | 1.66V |
| [39] | Gnd |
| [40] | (In) |

IC5200
Ethernet IC

| Pin | Voltage |
|------|------------|
| [1] | 0V |
| [2] | 1.1V |
| [3] | 1.1V |
| [4] | 1.1V |
| [5] | 1.1V |
| [6] | 1.1V |
| [7] | 3.51V (In) |
| [8] | 0.03V |
| [9] | 0V |
| [10] | 0V |
| [11] | 0V |
| [12] | 0V |
| [13] | n/c |
| [14] | 3.51V (In) |
| [15] | 1.32V |
| [16] | 0V |
| [17] | 0V |
| [18] | n/c |
| [19] | n/c |
| [20] | 0V |
| [21] | 3.26V |
| [22] | 1.23V |
| [23] | 3.25V |
| [24] | 3.25V |
| [25] | 3.24V |
| [26] | 0V |
| [27] | 0V |
| [28] | 0V |
| [29] | 1.08V |
| [30] | 3.51V (In) |
| [31] | 0V |
| [32] | 0.58V |

IC6100
Earphone IC

| Pin | Voltage |
|------|------------|
| [1] | Gnd |
| [2] | 0V (R-In) |
| [3] | 0V (R-Out) |
| [4] | Gnd |
| [5] | (Mute) |
| [6] | (-3.16V) |
| [7] | (-1.57V) |
| [8] | 1.64V |
| [9] | 3.31V (In) |
| [10] | Gnd |
| [11] | n/c |
| [12] | 0V (L-Out) |
| [13] | 0V (L-In) |
| [14] | Gnd |

IC5700
Woofer Amp

| Pin | Voltage |
|---------|-----------------|
| [1] | n/c |
| [2] | 1.25V |
| [3] | n/c |
| [4] | Gnd |
| [5] | n/c |
| [6] | 1.27V |
| [7] | 1.37V |
| [8] | 1.64V |
| [9] | 1.67V |
| [10] | 3.12V |
| [11] | 3.12V |
| [12] | 3.34V (Mute) |
| [13] | n/c |
| [14] | 0.66V |
| [15] | n/c |
| [16] | 4.76V |
| [17] | Gnd |
| [18] | not used |
| [19-20] | 24.05V (R B+) |
| [21] | not used |
| [22] | Gnd |
| [23] | 4.76V |
| [24] | 5.14V |
| [25] | 5.14V |
| [26] | n/c |
| [27] | 5.14V |
| [28] | 16.63V |
| [29] | Gnd |
| [30] | 12.01V (Out L-) |
| [31-32] | 24.05V (L B+) |
| [33] | 12.01V (Out L+) |
| [34] | Gnd |
| [35] | 16.64V |
| [36] | 3.21V (Reset) |
| [37] | Gnd |
| [38] | 1.66V |
| [39] | Gnd |
| [40] | 3.34V (In) |

IC6601
RS232 Routing

| Pin | Voltage |
|------|---------------|
| [1] | 3.53V |
| [2] | 5.69V |
| [3] | 0V |
| [4] | 0V |
| [5] | (-5.60V) |
| [6] | (-5.63V) |
| [7] | n/c (5.64V) |
| [8] | n/c (0V) |
| [9] | n/c (3.49V) |
| [10] | n/c (0V) |
| [11] | 3.34V |
| [12] | 3.48V |
| [13] | 0V |
| [14] | (-5.59V) |
| [15] | 0V (Gnd) |
| [16] | 3.5V (Vcc In) |

IC12200
+1.1V_VDD Regulator

| Pin | Voltage |
|------|----------------|
| [1] | 1.17V |
| [2] | 5.13V |
| [3] | 3.51V (Enable) |
| [4] | 6.27V |
| [5] | n/c |
| [6] | 1.2V (Out) |
| [7] | 1.2V (Out) |
| [8] | 1.2V (Out) |
| [9] | 1.2V (Out) |
| [10] | Gnd |
| [11] | Gnd |
| [12] | Gnd |
| [13] | Gnd |
| [14] | Gnd |
| [15] | 11.62V (In) |
| [16] | 11.62V (In) |
| [17] | 11.62V (In) |
| [18] | 11.62V (In) |
| [19] | 11.62V (In) |
| [20] | 5.13V |
| [21] | 5.13V |
| [22] | Gnd |
| [23] | 0.6V |
| [24] | 1.19V |
| [25] | 0.39V |
| [26] | n/c |
| [27] | Gnd |
| [28] | Gnd |

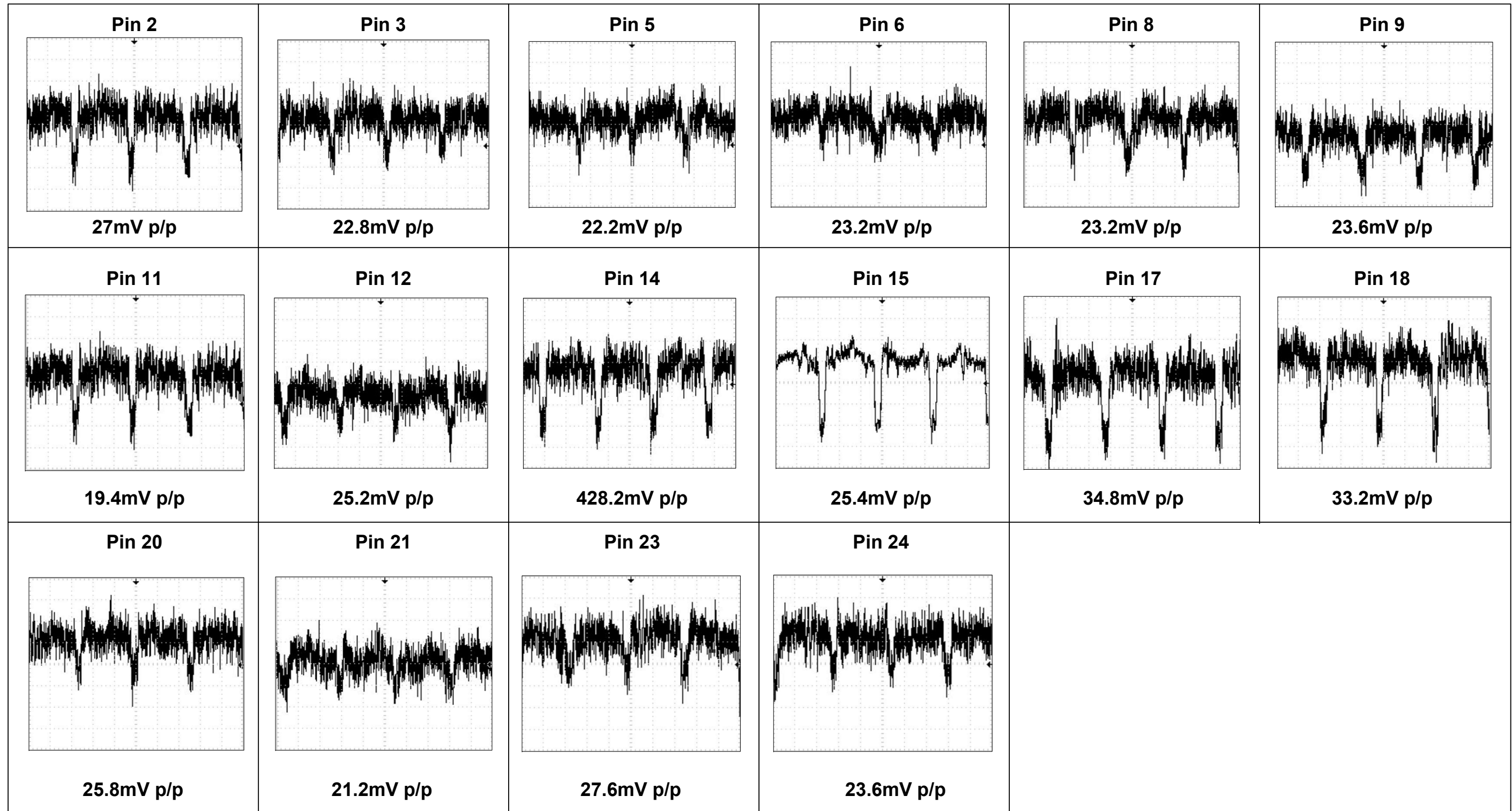
IC13402
VDDC Regulator

| Pin | Voltage |
|------|----------------|
| [1] | 1.19V |
| [2] | 5.19V |
| [3] | 3.51V (Enable) |
| [4] | 6.34V |
| [5] | n/c |
| [6] | 1.19V (Out) |
| [7] | 1.19V (Out) |
| [8] | 1.19V (Out) |
| [9] | 1.19V (Out) |
| [10] | Gnd |
| [11] | Gnd |
| [12] | Gnd |
| [13] | Gnd |
| [14] | Gnd |
| [15] | 11.62V (In) |
| [16] | 11.62V (In) |
| [17] | 11.62V (In) |
| [18] | 11.62V (In) |
| [19] | 11.62V (In) |
| [20] | 5.20V |
| [21] | 5.20V |
| [22] | Gnd |
| [23] | 0.6V |
| [24] | 0.39V |
| [25] | 0V |
| [26] | Gnd |
| [27] | Gnd |
| [28] | Gnd |

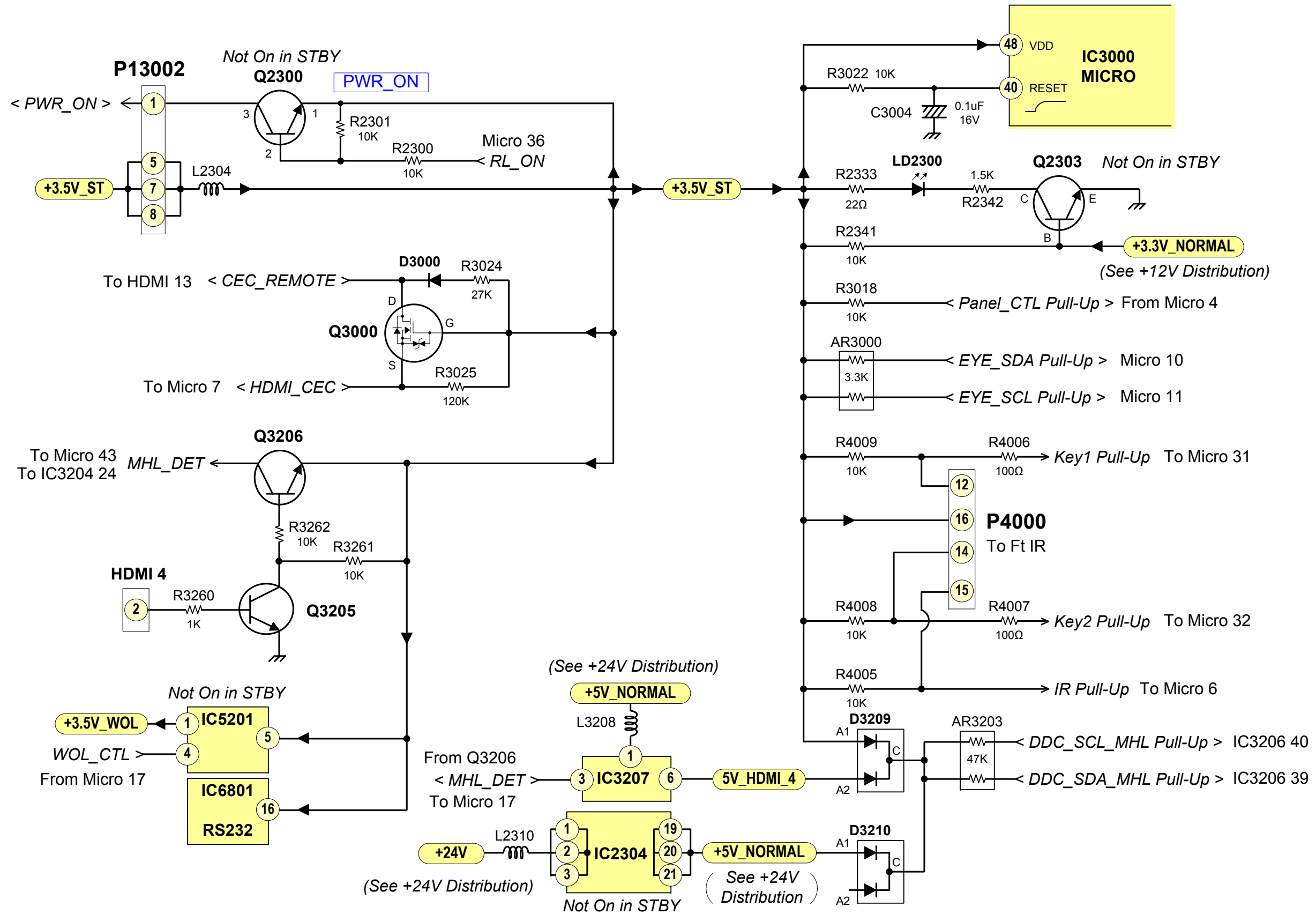


55UB9500 P13000 LVDS Connector Video Waveforms

All LVDS signals are taken with SMPTY Color Bar signal input (1080P) Component Input.
All LVDS signals are "Differential Pairs".
Scope Settings are 5mV per/division, 100uSec per/division.

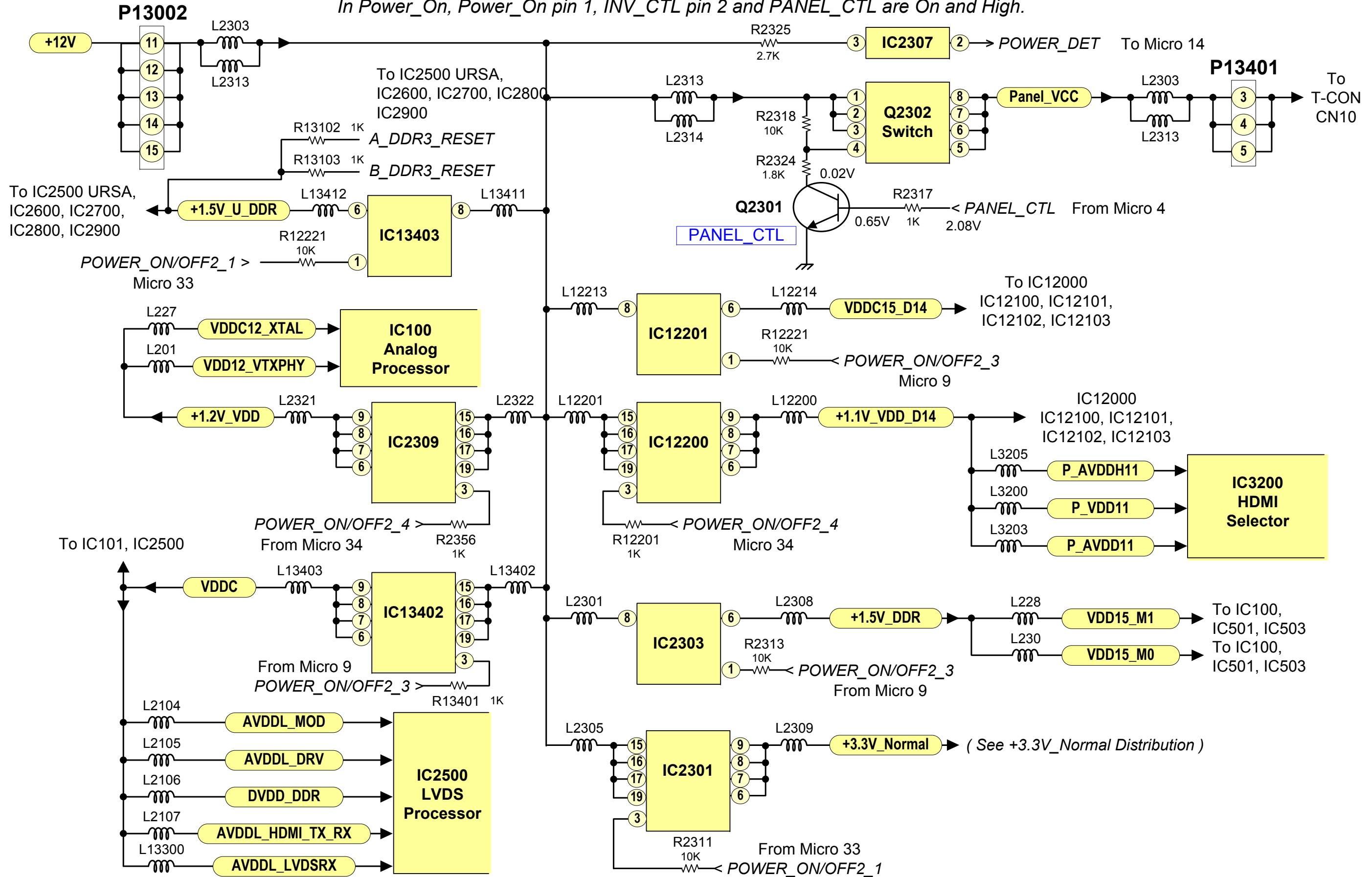


55UB9500 +3.5V_ST Voltage Distribution (In Stand-By)

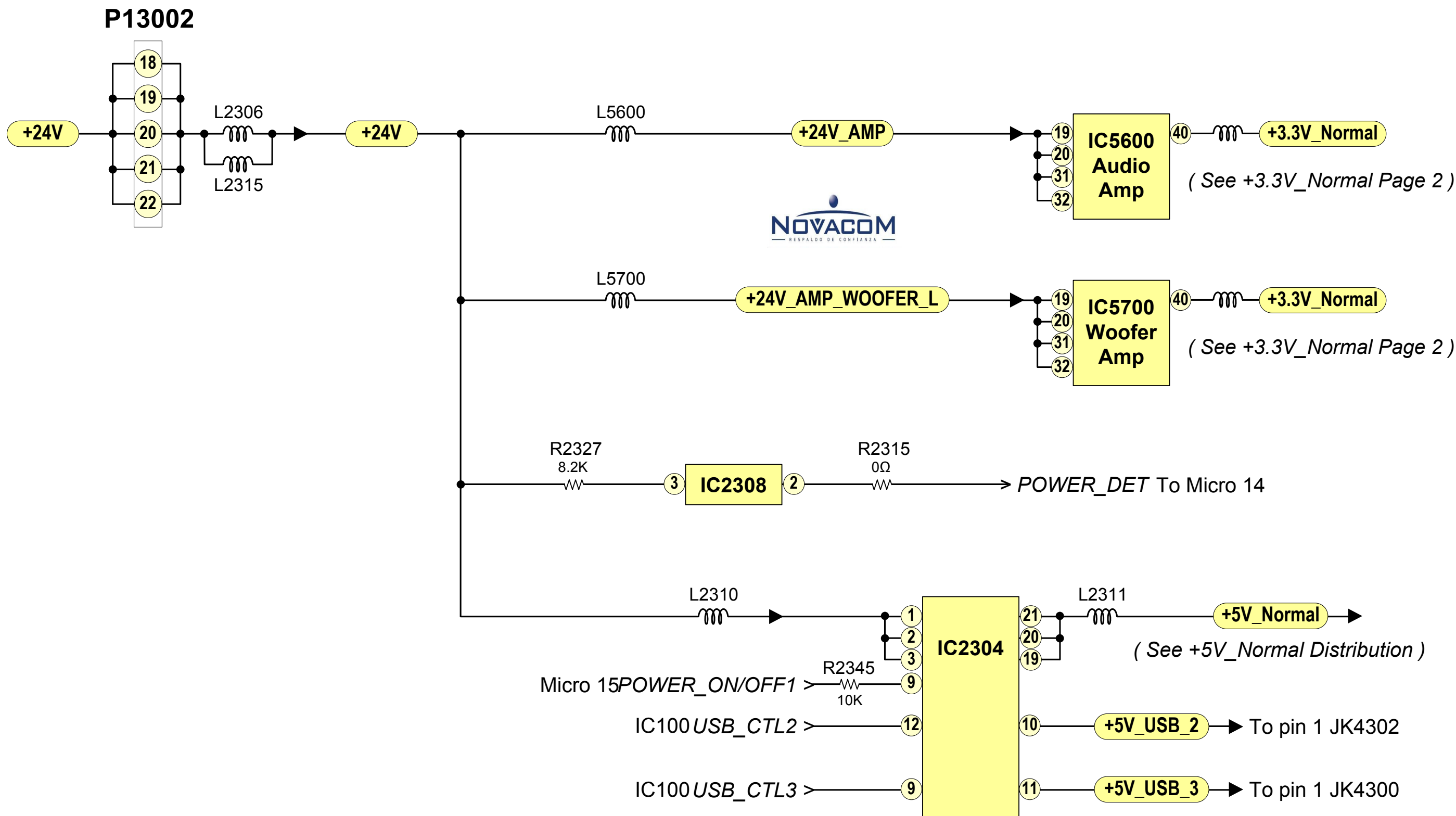


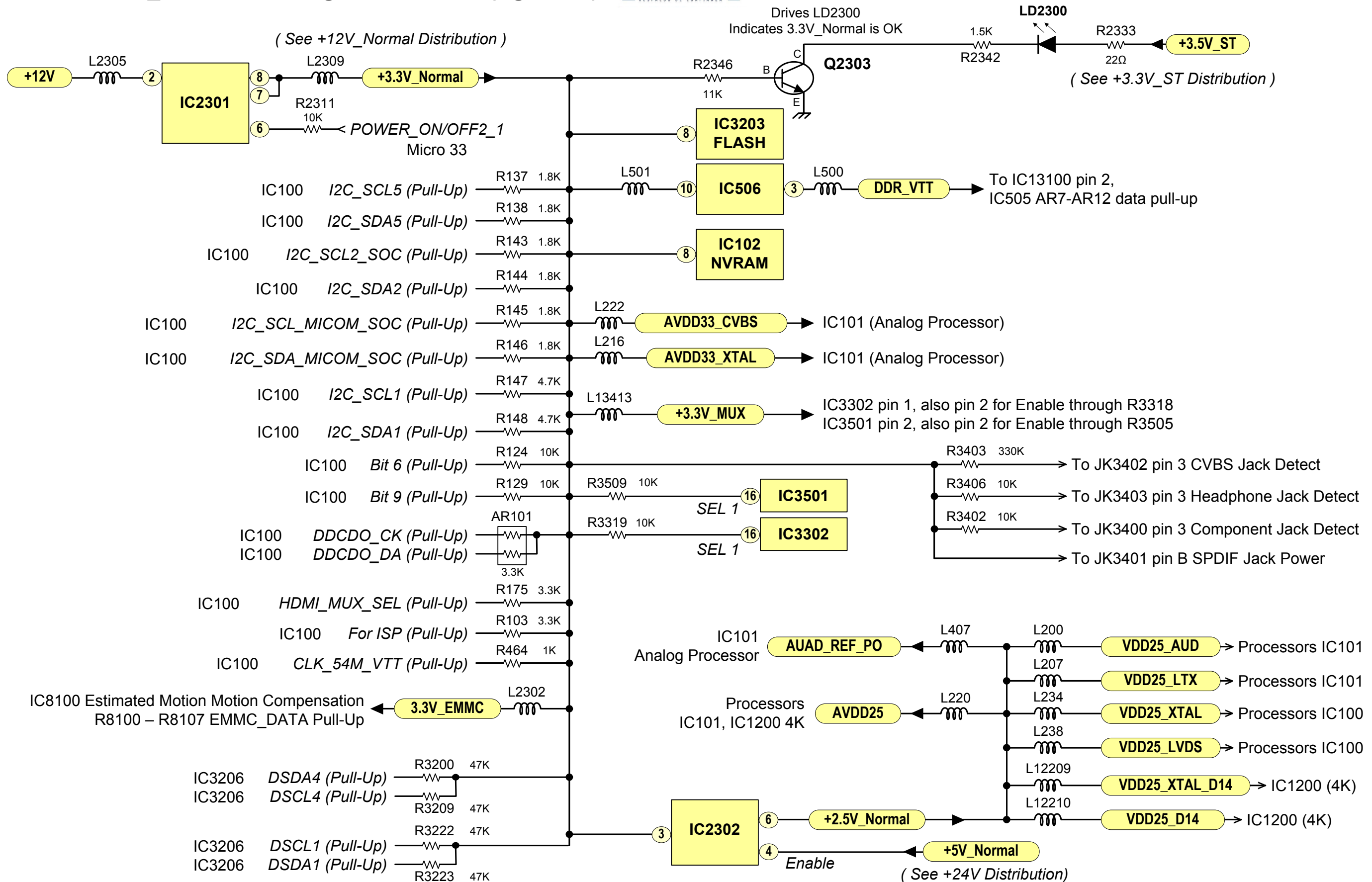
55UB9500 +12V Voltage Distribution (Power On)

In Power_On, Power_On pin 1, INV_CTL pin 2 and PANEL_CTL are On and High.



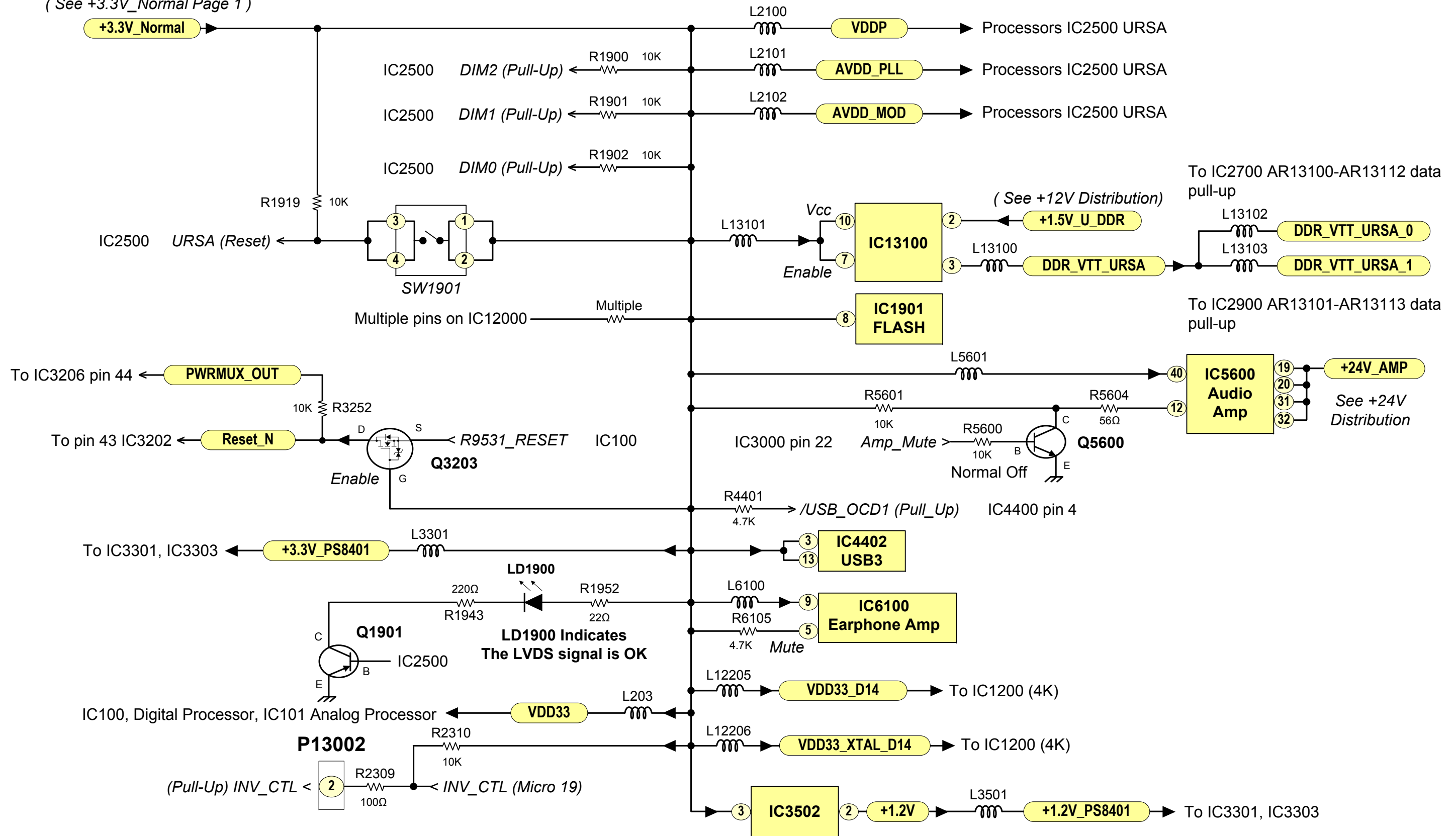
In Power_On, Power_On pin 1, INV_CTL pin 2 and PANEL_CTL are On and High.



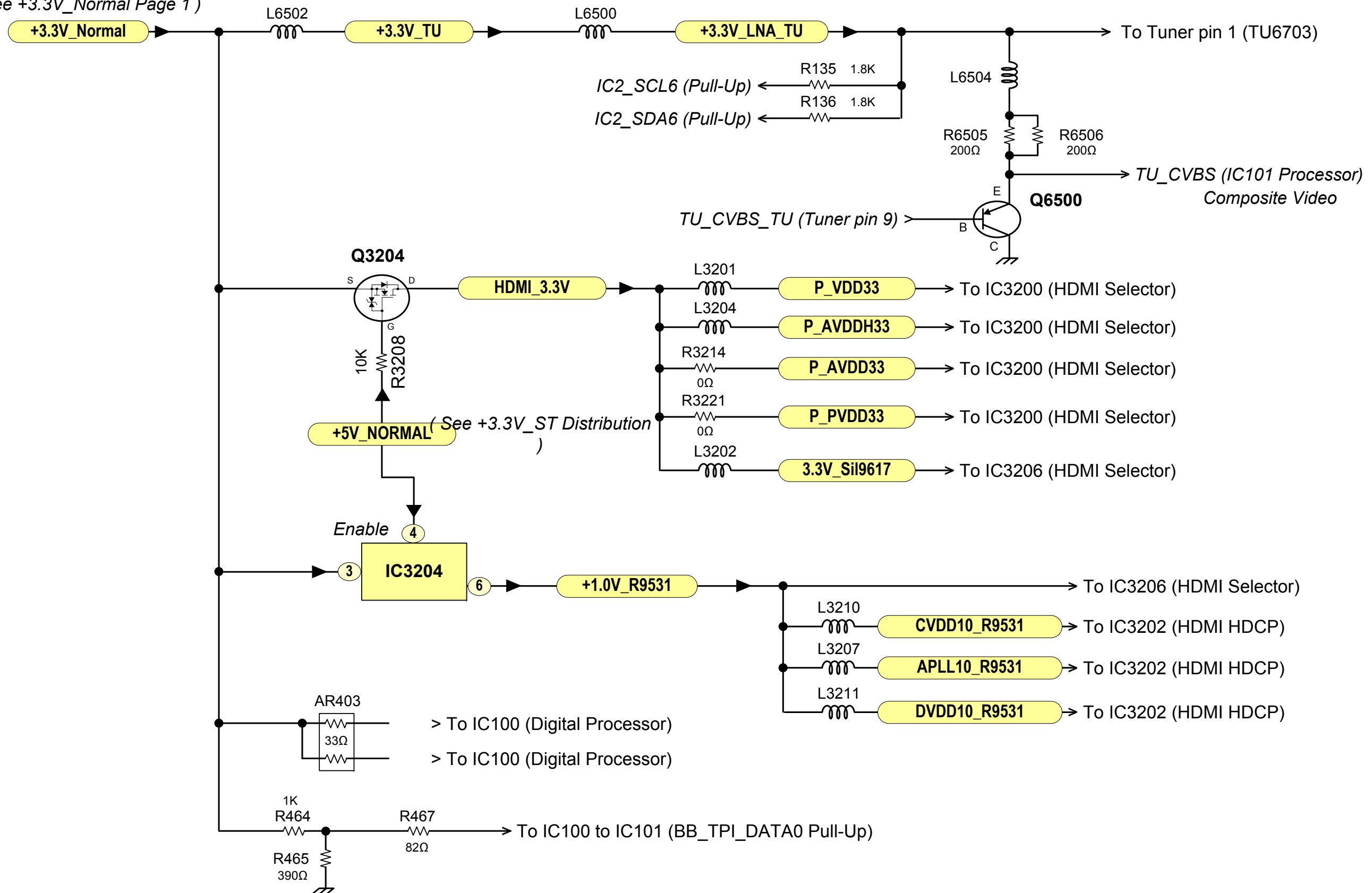


55UB9500 +3.3V_NORMAL Voltage Distribution (Pg 2 of 3)

(See +3.3V_Normal Page 1)

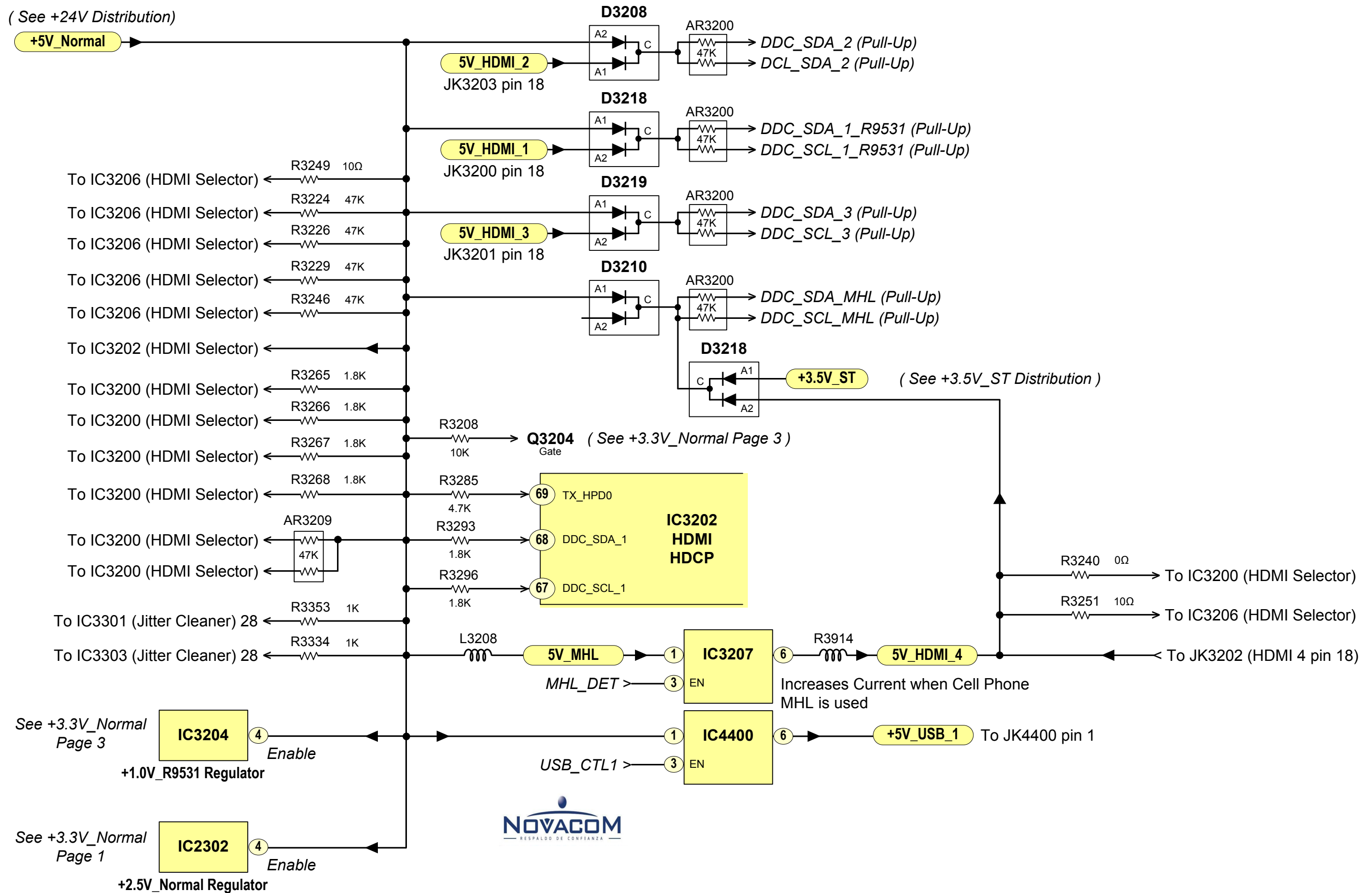


(See +3.3V_Normal Page 1)



55UB9500 +5V_NORMAL Voltage Distribution (Power On)

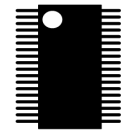
(See +24V Distribution)



55UB9800 T-CON Component Voltages

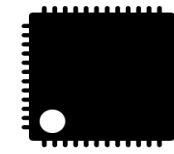
U15 Gamma Voltage Generator (BUF16821)

| Pin | DC | RUN |
|-----|-------|--------|
| 1 | Vcom2 | 6.15V |
| 2 | OUT1 | 15.89V |
| 3 | OUT2 | 0V |
| 4 | OUT3 | 13.92V |
| 5 | OUT4 | 13.48V |
| 6 | OUT5 | 12.33V |
| 7 | OUT6 | 0V |
| 8 | Gnd | Gnd |
| 9 | Vs | 16.29V |
| 10 | OUT7 | 10.32V |
| 11 | OUT8 | 8.50V |
| 12 | OUT9 | 7.87V |
| 13 | Vso | 3.33V |
| 14 | SCL | 3.33V |



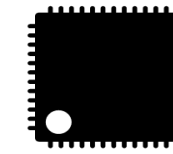
U449 DC-to-DC (TPS65162)

| Pin | DC | RUN |
|-----|-------|--------|
| 1 | POS1 | 0V |
| 2 | OUT1 | 0V |
| 3 | VDD | 3.26V |
| 4 | CE | 0.18V |
| 5 | VFLK | 1.97V |
| 6 | VDPM | 3.33V |
| 7 | RE | 3.3V |
| 8 | VGHM | 28.23V |
| 9 | VGHM | 28.98V |
| 10 | FBP | 1.27V |
| 11 | Gnd | Gnd |
| 12 | DRVN | 7.60V |
| 13 | SUP | 16.47V |
| 14 | DRVN | 8.12V |
| 15 | Gnd | Gnd |
| 16 | FBN | 0V |
| 17 | REF | 1.27V |
| 18 | DLY1 | 4.24V |
| 19 | N/C | n/c |
| 20 | N/C | n/c |
| 21 | FBB | 1.27V |
| 22 | CBOOT | 11.31V |
| 23 | SWB | 3.39V |
| 24 | SWB | 3.39V |



US2 DC-to-DC (TPS65162)

| Pin | DC | RUN |
|-----|-------|--------|
| 1 | POS1 | 0V |
| 2 | OUT1 | 0.01V |
| 3 | VDD | 3.26V |
| 4 | CE | 0.18V |
| 5 | VFLK | 1.97V |
| 6 | VDPM | 3.33V |
| 7 | RE | 3.21V |
| 8 | VGHM | 28.18V |
| 9 | VGHM | 28.92V |
| 10 | FBP | 1.27V |
| 11 | Gnd | Gnd |
| 12 | DRVN | 7.60V |
| 13 | SUP | 16.47V |
| 14 | DRVN | 7.87V |
| 15 | Gnd | Gnd |
| 16 | FBN | 0V |
| 17 | REF | 1.27V |
| 18 | DLY1 | 4.24V |
| 19 | N/C | n/c |
| 20 | N/C | n/c |
| 21 | FBB | 1.27V |
| 22 | CBOOT | 9.95V |
| 23 | SWB | 2.04V |
| 24 | SWB | 2.04V |



| Pin | DC | RUN |
|-----|------|--------|
| 25 | PVIN | 11.61V |
| 26 | PVIN | 11.61V |
| 27 | VIN | 11.44V |
| 28 | FREQ | 0V |
| 29 | DLY2 | 4.24V |
| 30 | SS | 1.92V |
| 31 | VC | 0.62V |
| 32 | EN2 | 3.33V |
| 33 | EN1 | 5.80V |
| 34 | Gnd | Gnd |
| 35 | Gnd | Gnd |
| 36 | Gnd | Gnd |
| 37 | SW | 11.59V |
| 38 | SW | 11.59V |
| 39 | SW1 | 16.46V |
| 40 | NC | n/c |
| 41 | FB | 1.27V |
| 42 | SWO | 16.43V |
| 43 | AVIN | 0V |
| 44 | NEG1 | 0V |
| 45 | Gnd | Gnd |
| 46 | OUT2 | 0V |
| 47 | Gnd | Gnd |
| 48 | NEG1 | 0V |

OP1

| Pin | DC |
|-----|--------|
| 1 | 0V |
| 2 | 6.15V |
| 3 | 6.15V |
| 4 | Gnd |
| 5 | 0V |
| 6 | 4.7V |
| 7 | 16.32V |
| 8 | 0V |



OP2

| Pin | DC |
|-----|--------|
| 1 | 0V |
| 2 | 6.14V |
| 3 | 6.15V |
| 4 | Gnd |
| 5 | 0V |
| 6 | 4.7V |
| 7 | 16.32V |
| 8 | 0V |



OP3

| Pin | DC |
|-----|--------|
| 1 | 8.31V |
| 2 | Gnd |
| 3 | 8.33V |
| 4 | 8.33V |
| 5 | 16.41V |



U10

| Pin | DC |
|-----|-------|
| 1 | Gnd |
| 2 | Gnd |
| 3 | Gnd |
| 4 | Gnd |
| 5 | 3.33V |
| 6 | 3.33V |
| 7 | 3.33V |
| 8 | 3.33V |



U263 Step-Down Switcher PS54325

| Pin | DC | RUN |
|-----|-------|-------|
| 1 | VO | 0V |
| 2 | VFB | 0.76V |
| 3 | VREG5 | 5.51V |
| 4 | SS | 5.48V |
| 5 | Gnd | Gnd |
| 6 | PG | 0.13V |
| 7 | EN | 3.25V |



U23

| Pin | DC |
|-----|--------|
| 1 | 12.39V |
| 2 | 11.57V |
| 3 | 8.15V |
| 4 | Gnd |
| 5 | 0.93V |
| 6 | 1.12V |
| 7 | 3.33V |
| 8 | 3.57V |



U24

| Pin | DC |
|-----|--------|
| 1 | 12.52V |
| 2 | 11.57V |
| 3 | 8.15V |
| 4 | Gnd |
| 5 | 0.93V |
| 6 | 1.12V |
| 7 | 3.33V |
| 8 | 3.57V |



U98

| Pin | DC |
|-----|-------|
| 1 | 2.78V |
| 2 | 3.33V |
| 3 | 3.33V |



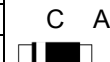
U134

| Pin | DC |
|-----|-------|
| 1 | Gnd |
| 2 | 1.46V |
| 3 | 3.31V |



D2

| Pin | DC |
|-----|--------|
| A | 11.59V |
| C | 16.38V |



D4

| Pin | DC |
|-----|-------|
| A | Gnd |
| C | 2.04V |



D5

| Pin | DC |
|-----|--------|
| A1 | 14.9V |
| A2 | 28.92V |
| C | 21.74V |



D6

| Pin | DC |
|-----|----------|
| A1 | (-5.54V) |
| A2 | Gnd |
| C | (-2.65V) |



D7

| Pin | DC |
|-----|-------|
| A | Gnd |
| C | 3.39V |



D8

| Pin | DC |
|-----|--------|
| A | 11.56V |
| C | 16.46V |



D9

| Pin | DC |
|-----|-------|
| A | Gnd |
| C | 3.39V |



D10

| Pin | DC |
|-----|----------|
| A1 | (-5.44V) |
| A2 | Gnd |
| C | (-2.56V) |



D11

| Pin | DC |
|-----|---------|
| A1 | 14.98V |
| A2 | 28.98V |
| C | 21.78CF |



D14

| Pin | DC |
|-----|-------|
| A | Gnd |
| C | 2.14V |



55UF7600 Power Supply Board Component Layout

55UF7600 (2015) Power Supply Section

P801 Black "SMPS Board" to the "Backlights"

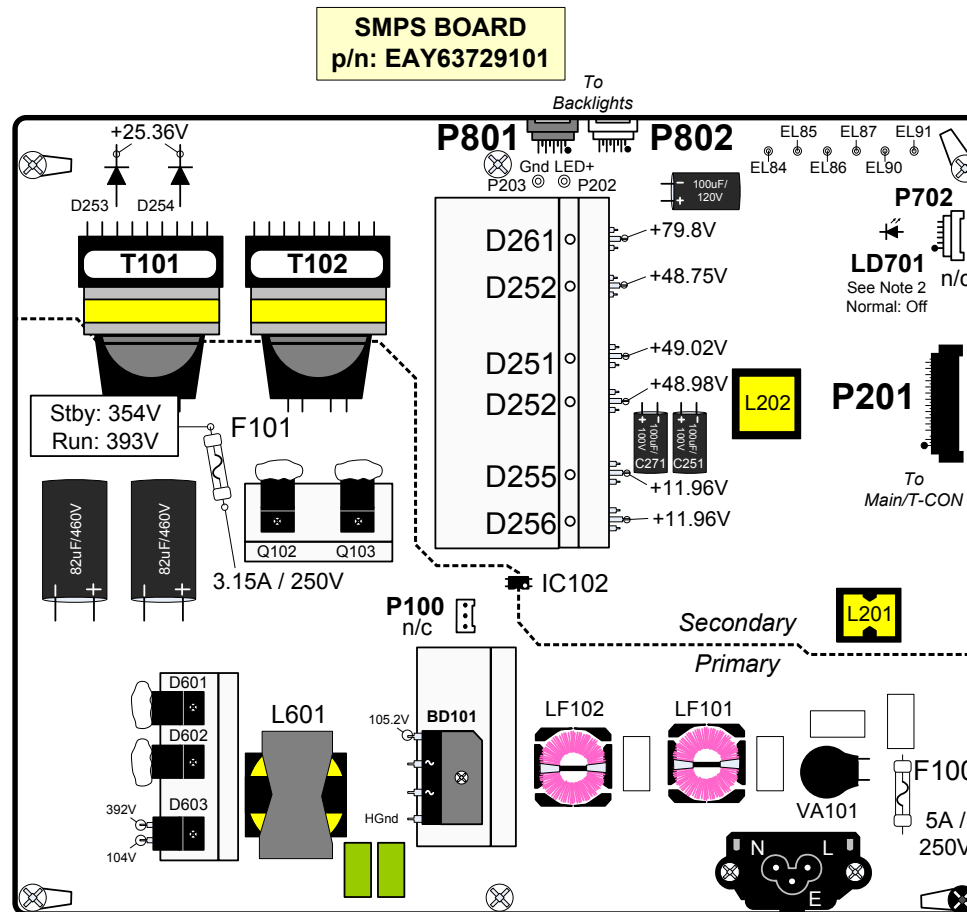
| PIN | LABEL | RUN | Diode ✓ |
|-----|-------|--------------|---------|
| 1 | VC_6 | 7.30V-26.72V | OL |
| 2 | VC_5 | 7.20V-26.93V | OL |
| 3 | VC_4 | 7.36V-26.77V | OL |
| 4 | N.C. | n/c | n/c |
| 5 | N.C. | n/c | n/c |
| 6 | N.C. | n/c | n/c |
| 7 | N.C. | n/c | n/c |
| 8 | LED+ | 79.5V-79.9V | OL |

Bright (100%) to *Dim (0%)

P802 White "SMPS Board" to the "Backlights"

| PIN | LABEL | RUN | Diode ✓ |
|-----|-------|--------------|---------|
| 1 | LED+ | 79.5V-79.9V | OL |
| 2 | N.C. | n/c | n/c |
| 3 | N.C. | n/c | n/c |
| 4 | N.C. | n/c | n/c |
| 5 | N.C. | n/c | n/c |
| 6 | VC_3 | 7.37V-27.16V | OL |
| 7 | VC_2 | 7.22V-26.94V | OL |
| 8 | VC_1 | 7.60V-27.03V | OL |

Bright (100%) to *Dim (0%)



VOLTAGE LABEL

| MODEL | LGP4955-15UL6 | |
|--------|----------------------------|--------------------|
| INPUT | AC 100V~240V~50/60Hz. 2.8A | |
| OUTPUT | 3.5V = 1.7A | 63.3V = 1.08A (49) |
| | 12V = 3.5A | 72.6V = 1.08A (55) |
| | 24V = 1.2A | |

| IC102 | |
|---------|---------|
| 31V | 6.56V |
| Hot Gnd | Chassis |
| 0.89V | 7.60V |

Note: Sometimes LD701 blinks during normal start-up (7 times). Local Dimming Error Code.

P201 "SMPS Board" to P2300 "MAIN Board"

| PIN | LABEL | STBY | RUN | Diode ✓ |
|-------|------------|-------|-------------|---------|
| 28 | *V_SYNC | 0V | 0.02V | OL |
| 27 | *SIN | 0V | 0.05V | OL |
| 26 | *Gnd | Gnd | Gnd | Gnd |
| 25 | *SCLK | 0V | 0.04V | OL |
| 23-24 | Gnd | Gnd | Gnd | Gnd |
| 18-22 | 24V | 0V | 25.46V | 1.11V |
| 16-17 | Gnd | Gnd | Gnd | Gnd |
| 11-15 | 12V | 0V | 11.88V | 0.34V |
| 9-10 | Gnd | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.54V | 3.52V | 1.74V |
| 6 | Gnd | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.54V | 3.52V | 1.74V |
| 4 | (4) P-DIM2 | 0V | 0.92V | OL |
| 3 | (3) P-DIM | 0V | 0.17V~2.55V | OL |
| 2 | DRV_ON | 0V | 3.46V | OL |
| 1 | PWR_ON | 0V | 3.51V | OL |

(3) Dim to Bright (4) Fixed

Note: Main board only has 24 pins. (Top 4 are for local dimming from the T-CON).

PWR_ON Pin 1: Turns on 12V and 24V (Also see Note 1)

DRV_ON Pin 2: Turns on Backlights. (Also see Note 2) DRV_ON is INV_CTL from Main.

P-DIM Pin 3: Controls Backlights via customer's menu Backlights 0% to 100%. P-DIM2 Pin 4: Fixed Voltage.

Note 1: Backlight power is 63.62V with PWR_ON arrives, (no backlights)

Note 2: Backlight Power goes to 80V when DRV_ON arrives, Backlights On).

LD701 normal state is Off. If it is blinking, it indicates a problem. Missing DRV_ON, LED feedback error, Controller Error, etc....

Example: If either P801 or P802 is disconnected, backlights come on, but only 1/2 the screen is lit, then LD701 blinks 3 times every 5 seconds. If DRV_ON is missing, LD701 (after 1 minute), blinks 5 times every 5 seconds.



55UF7600 Power Supply Board Voltage Information

P201 "SMPS Board" Stand-Alone

| Pin | Label | Test 1 | Test 2 |
|-------|-----------------------|--------|--------|
| 28 | *Vsync | n/a | n/a |
| 27 | *SCLK | n/a | n/a |
| 26 | *Gnd | n/a | n/a |
| 25 | *SCLK | n/a | n/a |
| 23-24 | Gnd | Gnd | Gnd |
| 18-22 | 24V | 24.50V | 24.65V |
| 16-17 | Gnd | Gnd | Gnd |
| 11-15 | 12V | 12.07V | 12.04V |
| 9-10 | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.54V | 3.53V |
| 6 | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.54V | 3.53V |
| 4 | ⁽³⁾ P-DIM2 | 3.52V | 3.50V |
| 3 | ⁽³⁾ P-DIM | 3.52V | 3.50V |
| 2 | ⁽²⁾ DRV-ON | 0V | 3.53V |
| 1 | ⁽¹⁾ PWR-ON | 3.54V | 3.53V |
| | | BL Off | BL On |

If P801 is disconnected, the backlight power will start at 37.7V, then jump to 47.97V and then fall back to 47.87V. Warning: Backlight power is slow to bleed down after power off, connected or disconnected.

If P801 is disconnected, Front Right half LEDs stay on.

If P802 is disconnected, Front Left half LEDs stay on.

If P801 or P802 is unplugged, LD701 blinks at a rate of 3 times every 5 seconds.

LED Power during TEST 1.

Test 1 LED Ground Return Line

LED Power during TEST 2.

Test 2 LED Ground Return Line

SMPS Controller IC is IC101

Backlight Driver IC is IC801

Backlight Controller IC is IC701

D251 3.5V_ST Source (back of the board)

D252 D261 24V Source

D253 D254 D255 12V Source

D259 D263 Backlight Power Source

P201 "SMPS Board" With Smart Jig

| Pin | Label | W/Jig |
|-------|-----------------------|--------|
| 28 | *Vsync | n/c |
| 27 | *SCLK | n/c |
| 26 | *Gnd | n/c |
| 25 | *SCLK | n/c |
| 23-24 | Gnd | Gnd |
| 18-22 | 24V | 24.72V |
| 16-17 | Gnd | Gnd |
| 11-15 | 12V | 12.04V |
| 9-10 | Gnd | Gnd |
| 7-8 | 3.5V | 3.51V |
| 6 | Gnd | Gnd |
| 5 | 3.5V | 3.51V |
| 4 | ⁽³⁾ P-DIM2 | n/c |
| 3 | ⁽³⁾ P-DIM | n/c |
| 2 | ⁽²⁾ DRV-ON | 3.28V |
| 1 | ⁽¹⁾ PWR-ON | 3.51V |
| | | BL On |

63.62V After 1 minute LD701 Red LED Blinks 5 times every 5 seconds

12.35V Average: Backlights are not on

76.2V LD701 does not blink

1.17V Average: Each varies due to brightness uniformity software

(1) PWR_ON turns on the 12V and 24V lines. Backlight power approx. 63.62V.

(2) DRV_ON (INV_ON from Main) turns on the Backlights. Backlight power goes to approx. 80V.

(3) P_DIM controls the backlight brightness. Controlled via the Customer's Menu: Home → Settings → Picture → Backlights. Range 0% to 100% directly proportional to DC voltage to Backlight brightness. (0.17V~2.55V)
P_DIM is actually a 4V p/p PWM signal.

(4) P_DIM2 fixed voltage.

LED Power during Jig Test

75.7V LD701 does not blink

Test 2 LED Ground Return Line

0.97V-1.45V Each varies due to brightness unif

SMPS Controller IC is IC100

Backlight Driver IC is IC801

Backlight Controller IC is IC701

D203 3.5V_ST Source

D251 D252 24V Source

D255 D256 D255 12V Source

D210 (D251) Backlight Power Source

Additional Details:

11.18V Average voltage swing for a block of LEDs. V1-V6

1.17V Average Feedback Voltage (High Bright)

12.35V Average Feedback Voltage (Dim)

79.5V Backlight power 100% Backlights

79.9V Backlight power 0% Backlights

42.29V Total Voltage Drop (Bright, Vivid)

144 Total LEDs 6 Blocks

24 LEDs per-Block 3.26V per-diode Voltage drop

P_DIM (1.58V (50%) Backlight Power 79.7V. Backlight Drive

16.16V.

Note: Sometimes LD701 blinks during normal start-up (7 times).

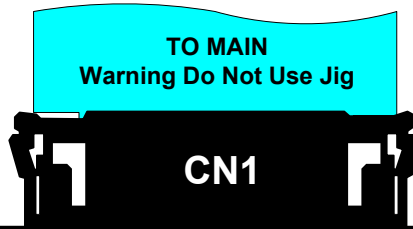
Local Dimming Error Code.

55UF7600 T-CON (TFT Drive) Components Identified

55UF7600 (2015) T-CON Section

Caution: Make sure the screws are installed when the T-CON is operating, damage may occur without them.

Note: To run the Panel Test (Testing the T-CON without the Main board), simply unplug CN1. Jump 12V to the fuse F1. Apply power to the set. (Backlights and Power Supply should be working OK). T-CON outputs color patterns on the screen. This test confirms the T-CON, Power Supply, Panel and Backlights are working normally. (Note: If backlights are not working, apply 12V to fuse and use a flashlight behind the panel to look for pattern changes).



CN1
VIN: (PANEL_VCC 12V)
Pins 1-2 (Gnd)
Pins 3-5 (11.97V)
From Main
Panel_VCC Supply

CN5 "T-CON" to P201 "SMPS"

| PIN | LABEL | RUN | Diode Check |
|-----|--------|-------|-------------|
| 1 | V_SYNC | 0.03V | 0.76V |
| 2 | Gnd | Gnd | Gnd |
| 3 | SIN | 0.08V | 0.76V |
| 4 | SCLK | 0.06V | 0.86V |

Warning: Do not use the Smart Jig on this T-CON. Damage will occur.

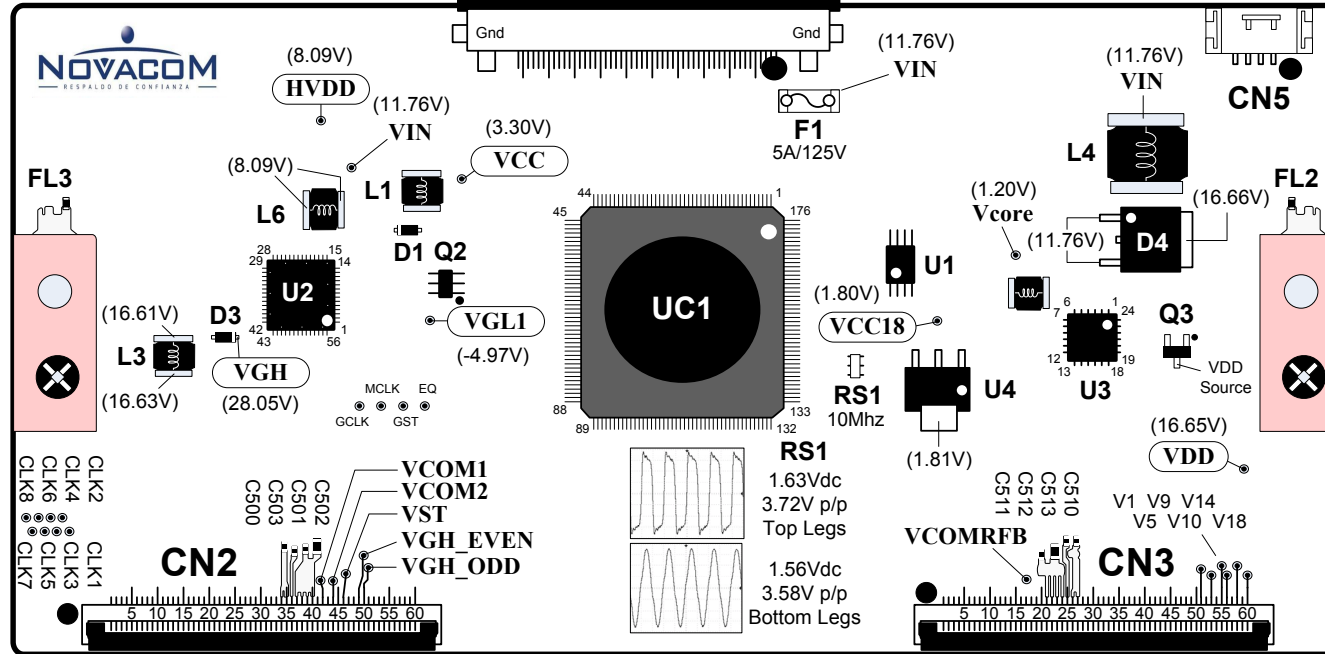
Q2

- Pin 1 Gnd
- Pin 2 0.61V
- Pin 3 -0.27V
- Pin 4 -4.98V
- Pin 5 4.70V
- Pin 6 4.71V

- C502 16.64V VDD
- C501 16.64V VDD
- C503 8.09V HVDD
- C500 1.80V VCC18

- VCOM1 5.94V
- VCOM2 6.14V
- VST -4.91V
- VGH_EVEN -4.96V to 28V*
- VGT_ODD -4.96V to 28V*

* Toggles Every Second



Local Dimming to SMPS

U1

- Pin 1 Gnd
- Pin 2 Gnd
- Pin 3 Gnd
- Pin 4 Gnd
- Pin 5 3.27V
- Pin 6 3.26V
- Pin 7 3.29V
- Pin 8 3.30V

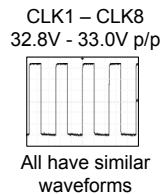
- C511 16.64V VDD
- C512 16.64V VDD
- C513 8.09V HVDD
- C510 1.80V VCC18

- V1 15.79V
- V5 12.12V
- V9 8.39V
- V10 7.78V
- V14 3.90V
- V18 0.38V

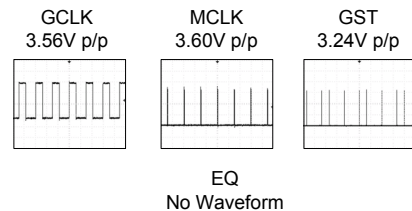
VCOMRFB 5.90V

CN2 Key Voltages

- CLK1 8.91V
- CLK2 8.96V
- CLK3 8.96V
- CLK4 8.96V
- CLK5 8.91V
- CLK6 8.91V
- CLK7 8.91V
- CLK8 8.91V



- Vcore** Pin 33
- VCC18** Pin 34, 35
- HVDD** Pin 36
- VDD** Pin 37-40
- VGL1** Pin 45
- VGH_EVEN** Pin 49
- VGH_ODD** Pin 50
- VGH** Pin 51



CN2 Video: Pins 14, 15 / 17, 18 / 20, 21 / 23, 24 / 26, 27 / 29, 30

CN3 Key Voltages

- Vcore** Pin 28
- VCC18** Pin 26, 27
- HVDD** Pin 25
- VDD** Pin 21-24
- VGL1** Pin 16
- VGH_EVEN** Pin 12
- VGH_ODD** Pin 11
- VGH** Pin 10

CN3 Video: Pins 31, 32 / 34, 35 / 37, 38 / 40, 41 / 43, 44 / 46, 47

Q3

- Pin 1 8.99V
- Pin 2 16.65V
- Pin 3 16.66V

U4

- Pin 1 Gnd
- Pin 2 1.81V
- Pin 3 3.30V

55UF7600 Main Board Component Layout

55UF7600 (2015) Main Board Section

P2300 "MAIN Board" to "SMPS Board" P201

| PIN | LABEL | STBY | RUN | Diode Check |
|-------|--------|-------|-------------|-------------|
| 23-24 | GND | Gnd | Gnd | Gnd |
| 18-22 | 24V | 0V | 25.46V | OL |
| 16-17 | GND | Gnd | Gnd | Gnd |
| 11-15 | 12V | 0V | 11.88V | OL |
| 9-10 | GND | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.54V | 3.52V | 1.23V |
| 6 | GND | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.54V | 3.52V | 1.23V |
| 4 | P-DIM2 | 0V | 0.92V | OL |
| 3 | P-DIM | 0V | 0.17V-2.55V | OL |
| 2 | DRV_ON | 0V | 3.46V | 1.54V |
| 1 | PWR_ON | 0V | 3.51V | OL |

Dim to Bright

- PWR_ON:** turns on the 12V and 24V lines. Backlight power goes to 63.62V.
- INV_CTL:** (DRV_ON on SMPS) turns on the Backlights. Backlight power goes to 80V.
- P-DIM:** controls the backlight brightness. Controlled by Cust. Menu, Video, Backlights. Range 0% to 100% directly proportional to DC voltage to Backlight brightness. P-DIM is actually a PWM signal.
- P-DIM2:** Fixed Voltage.

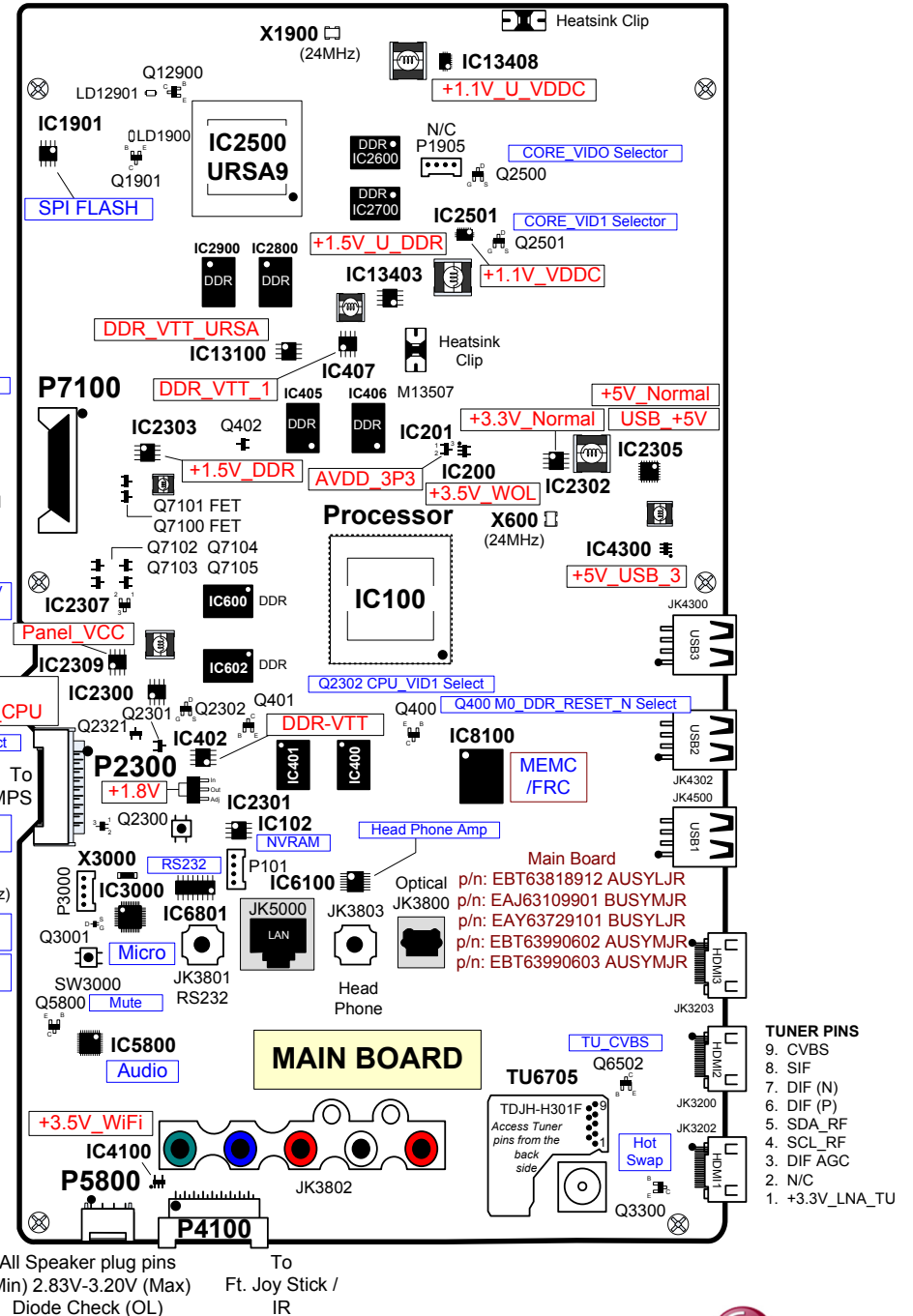
KEY VOLAGES

P4100 "MAIN" to "Joy Stick J1, M-Remote/WiFi"

| PIN | LABEL | STBY | RUN | Diode Check | |
|-----|----------|-------|-------|-------------|-----------------|
| 2 | 3.5V_WOL | 0V | 3.49V | OL | WiFi pin 1 |
| 12 | Key 1 | 3.55V | 3.52V | 1.98V | Joy Stick pin 2 |
| 14 | Key 2 | 3.55V | 3.52V | 1.98V | Joy Stick pin 3 |
| 15 | IR | 3.54V | 3.78V | 1.89V | Joy Stick pin 7 |
| 16 | 3.5V_ST | 3.56V | 3.52V | 1.25V | Joy Stick pin 4 |

Pin 2 is power for the M-Remote / WiFi Board
 Pin 16 is power for the IR/Joy Stick Board
 IR peak/peak 3.80V

LD12900: Indicates VX1 Signal to T-CON is good if LD12900 is illuminated. If Off, possible causes:
 Improper seated or defective Vx1 cable or problem with signal processing.
 LD12901 turned on by Q12900



60LN5400 INTERCONNECT DIAGRAM

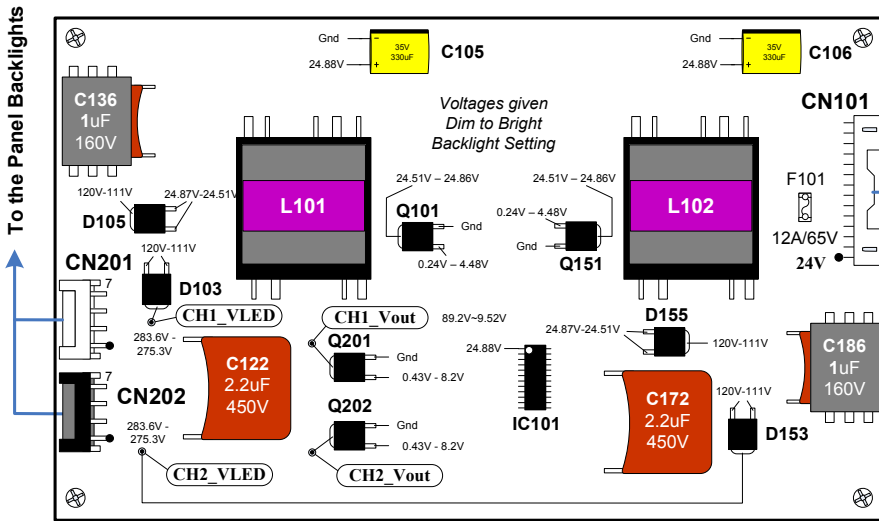
Note: If the top or bottom area of the screen is exhibiting a dim picture, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not, 1st: Check the P-DIM level, it should rise with the percentage shown on screen. 100% = 3.03V. Follow the P-DIM signal all the way through the SMPS to the Inverter. **DIM OR DARK PICTURE:** Turn the Brightness, Contrast and Backlights all the way up. Confirm 180V D801. Confirm P-DIM is approx. 2.8V. Using a 5K resistor, jump backlight grounding test point (either CH1_Vout or CH2_Vout on the Inverter while observing the picture. The Backlights should brighten up. If not, replace panel. If yes, replace the Inverter (if available).

POWER SUPPLY TESTING (Including the Inverter and Backlights).
Warning: Do not add or remove jumpers with Power Applied.

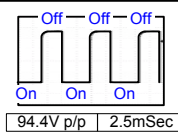
SMPS TEST 1: To Force Power Supply On without the Main Board.
Disconnect the P401 on the Main board.
(A) Jump pin 3 or 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main. 24V to the Inverter. (No Backlight power and the Backlights are not on at this time). LED Ground Return Line is (0V). Remove AC power. Leave the jumper in place.

SMPS TEST 2: (Turning on the Backlights)
(B) Jump pin 3 or 5 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now read to 284V. LED Ground Return Line is (1.7V). P-DIM P201 (pin 4) reads 3.33V.

150 Total LEDs, 5 LEDs per/Board.
3 boards per/row (Strip). One group consist of 5 rows consisting of 75 LEDs.
2 Groups make up the backlights. Backlight power 284V.



LED Drive Signal CH1 or CH2 Vout
50% Backlight Setting
On the Cust. Menu.



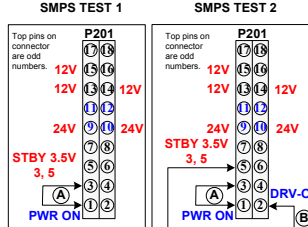
CN201 "Inverter" to "The Panel"

| PIN | LABEL | RUN | Diode ✓ |
|-----|-----------|-----------|---------|
| 7 | CH2_FB(-) | 184V~142V | OL |
| 6 | N/C | n/c | n/c |
| 5 | CH2_VLED | 284V~275V | 0.84V |
| 4 | N/C | n/c | n/c |
| 3 | CH1_FB(-) | 184V~142V | OL |
| 2 | N/C | n/c | n/c |
| 1 | CH1_VLED | 284V~275V | 0.84V |

CN202 "Inverter" to "The Panel"

| PIN | LABEL | RUN | Diode ✓ |
|-----|-----------|-----------|---------|
| 7 | CH1_Vout | 89V~9.5V | 0.84V |
| 6 | N/C | n/c | n/c |
| 5 | CH1_FB(+) | 184V~142V | OL |
| 4 | N/C | n/c | n/c |
| 3 | CH2_Vout | 89V~9.5V | 0.84V |
| 2 | N/C | n/c | n/c |
| 1 | CH2_FB(+) | 184V~142V | OL |

CH2 controls the Top 1/2 of screen backlights
CH1 controls the Bottom 1/2 of screen backlights
CN201 pin 7 direct short to CN202 pin 1
CN201 pin 3 direct short to CN202 pin 5



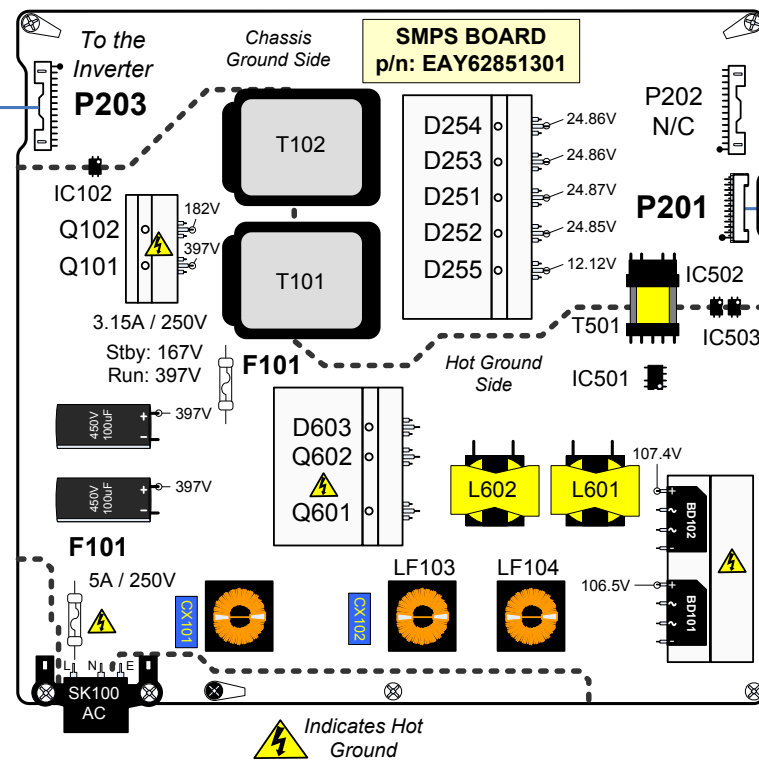
To the Keyboard
Back Left of Set
p/n: EBR77104601
To Key Board



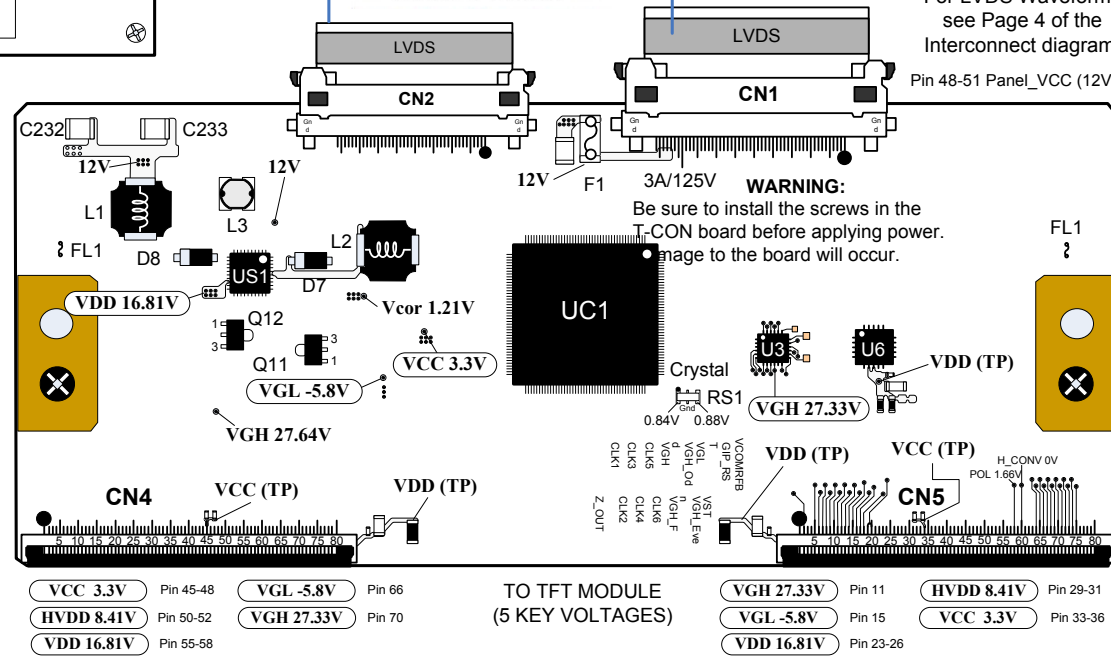
Bottom Center of Set
Front IR
p/n: EBR76405802

No Local Dimming
In this Model.
PANEL p/n: EAJ62273301

Backlight Power 180V Pin 7



For LVDS Waveforms
see Page 4 of the
Interconnect diagram.
Pin 48-51 Panel_VCC (12V)



TO TFT MODULE (5 KEY VOLTAGES)

| | | | | | | | |
|------------|-----------|------------|--------|------------|-----------|------------|-----------|
| VCC 3.3V | Pin 45-48 | VGL -5.8V | Pin 66 | VGH 27.33V | Pin 11 | HVDD 8.41V | Pin 29-31 |
| VDD 16.81V | Pin 55-58 | VGH 27.33V | Pin 70 | VGL -5.8V | Pin 15 | VCC 3.3V | Pin 33-36 |
| | | | | VDD 16.81V | Pin 23-26 | | |

Additional Voltages from U3 to the Panel:

- CLK1: U3 pin 4 (6.87V) CN4 pin 76 CN5 pin 5
- CLK2: U3 pin 5 (6.85V) CN4 pin 75 CN5 pin 6
- CLK3: U3 pin 6 (6.85V) CN4 pin 74 CN5 pin 7
- CLK4: U3 pin 7 (6.84V) CN4 pin 73 CN5 pin 8
- CLK5: U3 pin 8 (6.84V) CN4 pin 72 CN5 pin 9
- CLK6: U3 pin 9 (6.83V) CN4 pin 71 CN5 pin 10
- VGH: U3 pin 10 (27.46V) CN4 pin 75 CN5 pin 11
- VGH_F: U3 pin 11 (-5.8V) CN4 pin 74 CN5 pin 12
- VGH_Odd: U3 pin 12 (27.95V) CN4 pin 73 CN5 pin 13
- VGH_Even: U3 pin 13 (27.43V) CN4 pin 72 CN5 pin 14
- VGL: U3 pin 14 (-5.8V) CN4 pin 71 CN5 pin 15
- VST: U3 pin 15 (-5.73V) CN4 pin 70 CN5 pin 16
- GIP_RST: U3 pin 16 (-5.79V) CN4 pin 69 CN5 pin 17
- VCOMRFB: U3 pin 17 (0V) CN4 pin 68 CN5 pin 18
- VCOM: U3 pin 18 (16.94V) CN4 pin 69, 70 CN5 pin 19, 20

P201 CONNECTOR SMPS to MAIN:
PWR-ON Pin 1: Starts 12V, 24V and 24V to Inverter. No Backlights.

DRV-ON Pin 2: Starts Backlights
LED Power goes to 284V.

P_DIM Pins 4: can vary according to incoming video IRE level, OSD Backlight setting and then Intelligent Sensor (room light condition).
Output from the Video Processor.
Range 0.17V to 3.03V.

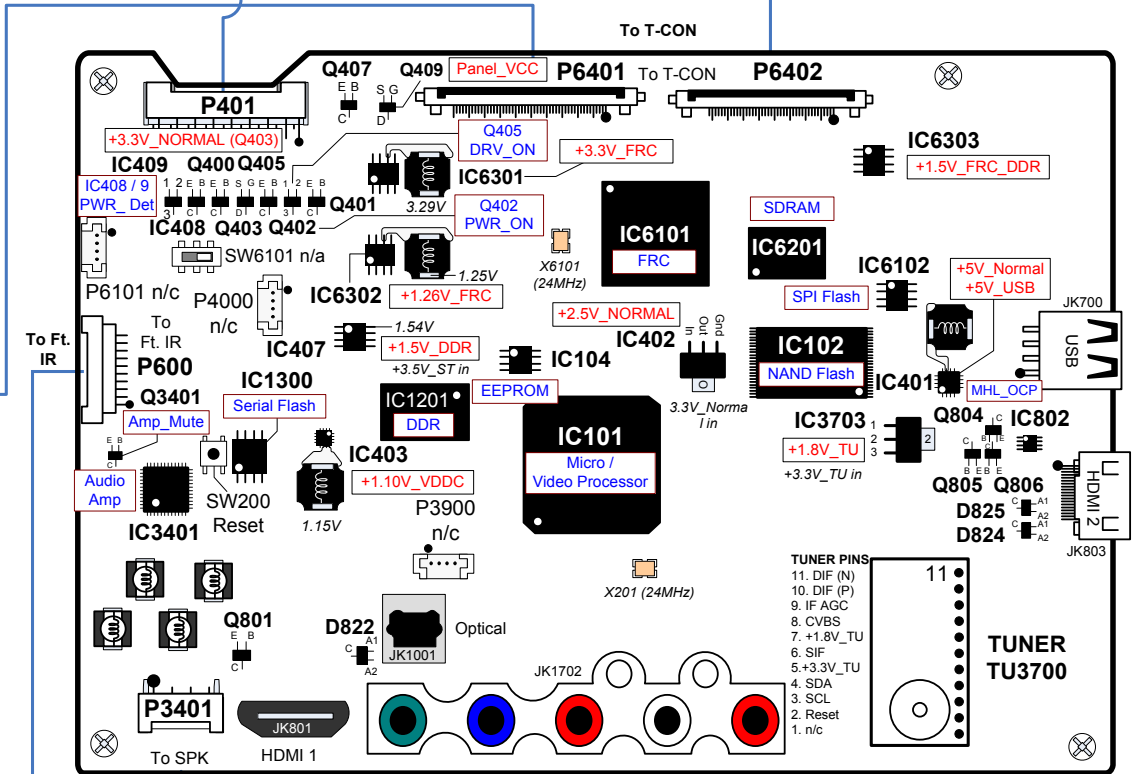
P201 "SMPS Board" to "Main Board" P401

| PIN | LABEL | STBY | RUN | Diode Check |
|-------|---------|-------|-------------|-------------|
| 17-18 | Gnd | Gnd | Gnd | Gnd |
| 16 | 24V | 0V | 24.81V | 0.55V |
| 13-15 | 12V | 0V | 12.02V | 1.44V |
| 11-12 | Gnd | Gnd | Gnd | Gnd |
| 9-10 | 24V | 0V | 24.81V | 0.55V |
| 7-8 | Gnd | Gnd | Gnd | Gnd |
| (4) 6 | A-DIM | 0V | 0.16V~2.86V | 0.84V |
| 5 | 3.5V_ST | 3.56V | 3.52V | OL |
| (3) 4 | P-DIM | 0V | 0.17V~3.03V | OL |
| 3 | 3.5V_ST | 3.56V | 3.52V | OL |
| (2) 2 | DRV_ON | 0V | 3.28V | OL |
| (1) 1 | PWR_ON | 0V | 3.3V | 1.19V |

For DC voltages
See P201 Chart

P401
"MAIN Board"
To P201
"SMPS Board"

| Pin | Diode |
|-------|-------|
| 1 | OL |
| 2 | 1.75V |
| 3 | 0.82V |
| 4 | OL |
| 5 | 0.83V |
| 6 | 1.10V |
| 7-8 | Gnd |
| 9-10 | OL |
| 11-12 | Gnd |
| 13-15 | OL |
| 16 | OL |
| 17-18 | Gnd |



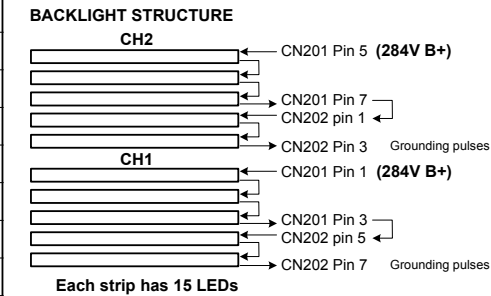
1.08V Each Pin
SPK p/n: EAB62849301

For DC voltages for Main board
components see Page 2 of the
Interconnect diagram.

Main Boards Used:
UA.AUSULJR / UA.BUSULJR
p/n: EBT62351503
p/n: EBT62351504

P601 "MAIN" to "Front IR Board" J1

| PIN | LABEL | STBY | RUN | Diode Check |
|-----|---------|-------|-------|-------------|
| 10 | EYE_SDA | 0.20V | 3.35V | 1.22V |
| 9 | EYE_SCL | 0.20V | 3.35V | 1.22V |
| 8 | Gnd | Gnd | Gnd | Gnd |
| 7 | IR | 3.54V | 3.41V | OL |
| 6 | LED_R | 2.62V | 0V | 2.84V |
| 5 | Gnd | Gnd | Gnd | Gnd |
| 4 | 3.5V_ST | 3.55V | 3.41V | 0.83V |
| 3 | Key2 | 3.55V | 3.41V | OL |
| 2 | Key1 | 0.05V | 3.41V | OL |
| 1 | Gnd | Gnd | Gnd | Gnd |



Each strip has 15 LEDs

IC104 EEPROM Memory

| Pin | Voltage |
|-----|---------|
| [1] | Gnd |
| [2] | Gnd |
| [3] | Gnd |
| [4] | Gnd |
| [5] | 3.27V |
| [6] | 3.27V |
| [7] | Gnd |
| [8] | 3.27V |

IC401 +5V+NORMAL Regulator

| Pin | Voltage |
|------|-----------------------|
| [1] | n/c |
| [2] | 0.63V |
| [3] | 6.26V |
| [4] | 0.46V |
| [5] | 3.27V |
| [6] | 4.77V |
| [7] | Gnd |
| [8] | 5.18V (5V_USB Out) |
| [9] | 5.18V (5V_Normal Out) |
| [10] | 0.8V |
| [11] | 5.18V (5V_Normal Out) |
| [12] | 11.32V |
| [13] | Gnd |
| [14] | 11.93V (Vcc In) |
| [15] | 6.28V |
| [16] | 6.86V |

IC402 +1.8V_TU Regulator

| Pin | Voltage |
|-----|------------|
| [1] | 0V (Gnd) |
| [2] | 2.5V (Out) |
| [3] | 3.27V (In) |

IC403 +1.1V_DDR Regulator

| Pin | Voltage |
|------|----------------|
| [1] | 3.29V (Vcc In) |
| [2] | 3.29V (Vcc In) |
| [3] | Gnd |
| [4] | Gnd |
| [5] | Gnd |
| [6] | 0.83V |
| [7] | 0.67V |
| [8] | 0.51V |
| [9] | 0.85V |
| [10] | 1.17V (Out) |
| [11] | 1.17V (Out) |
| [12] | 1.17V (Out) |
| [13] | 4.49V |
| [14] | n/c |
| [15] | 3.23V |
| [16] | 3.29V (Vcc In) |

IC407 +1.5V_DDR Regulator

| Pin | Voltage |
|-----|----------------|
| [1] | 3.29V (Vcc In) |
| [2] | n/c |
| [3] | 3.29V (Vcc In) |
| [4] | 3.27V |
| [5] | Gnd |
| [6] | 3.18V |
| [7] | 0.8V |
| [8] | 1.53V (Out) |

IC408 PWR_Det +12V in

| Pin | Voltage |
|-----|------------|
| [1] | Gnd |
| [2] | 3.3V (Out) |
| [3] | 3.3V (In) |

IC409 PWR_Det +24V in

| Pin | Voltage |
|-----|------------|
| [1] | Gnd |
| [2] | 3.3V (Out) |
| [3] | 3.3V (In) |

IC802 +5V_USB2/3 OCP

| Pin | Voltage |
|-----|----------------|
| [1] | Gnd |
| [2] | 5.18V (Vcc In) |
| [3] | 5.18V (Vcc In) |
| [4] | 0V |
| [5] | 3.26V |
| [6] | 5.10V (Out) |
| [7] | 5.10V (Out) |
| [8] | 5.10V (Out) |

IC1300 Serial FLASH Memory

| Pin | Voltage |
|-----|----------------|
| [1] | 3.29V |
| [2] | 3.28V |
| [3] | 0V |
| [4] | Gnd |
| [5] | 0V |
| [6] | 0V |
| [7] | 3.29V (Vcc In) |
| [8] | 3.29V (Vcc In) |

IC3703 +1.8V_TU Regulator

| Pin | Voltage |
|-----|------------|
| [1] | 0V (Gnd) |
| [2] | 1.8V (Out) |
| [3] | 3.27V (In) |

IC6102 SPI FLASH

| Pin | Voltage |
|-----|---------------------|
| [1] | 0.05V |
| [2] | 0V |
| [3] | 3.28V (WP) |
| [4] | Gnd |
| [5] | 0V |
| [6] | 0V |
| [7] | 3.28V |
| [8] | 3.29V (3.3V_FRC in) |

IC6301 3.3V_FRC Regulator

| Pin | Voltage |
|-----|-----------------|
| [1] | 11.86V (Enable) |
| [2] | 0.76V |
| [3] | 5.45V |
| [4] | 5.42V |
| [5] | Gnd |
| [6] | 3.29V (Out) |
| [7] | 8.66V |
| [8] | 12.19V (12V In) |

IC6302 1.26V_FRC Regulator

| Pin | Voltage |
|-----|-----------------|
| [1] | 3.20V (Enable) |
| [2] | 0.76V |
| [3] | 5.42V |
| [4] | 5.38V |
| [5] | Gnd |
| [6] | 1.27V (Out) |
| [7] | 6.67V |
| [8] | 12.19V (12V In) |

IC6303 +1.5V_FRC_DDR Regulator

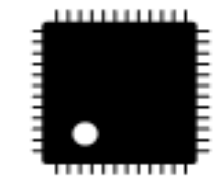
| Pin | Voltage |
|-----|----------------|
| [1] | 3.29V (Vcc In) |
| [2] | n/c |
| [3] | 3.28V |
| [4] | 3.28V |
| [5] | Gnd |
| [6] | 3.19V |
| [7] | 0.80V |
| [8] | 1.50V (Out) |



| | | |
|-------------|------------------------|---|
| Q400 | Drives Q403 | Pin [B] 0.63V [C] 0.04V [E] Gnd |
| Q401 | Drives Q402 | Pin [B] 0.66V [C] 0.05V [E] Gnd |
| Q402 | PWR_On Switch | Pin [1] 3.31V [2] 2.62V [3] 3.22V |
| Q403 | +3.3V_NORMAL Switch | Pin [G] 0.34V [S] 3.31V [D] 11.963.29 |
| Q405 | DRV_ON Switch | Pin [B] 0.2V [C] 2.99V [E] Gnd |
| Q407 | Drives Q409 | Pin [B] 0.64V [C] 0.04V [E] Gnd |

| | | |
|--------------|----------------------|---|
| Q409 | Panel_VCC Switch | Pin [G] 1.78V [S] 11.93V [D] 11.91V |
| Q801 | HDMI Hot Swap | Pin [B] 0V [C] 0.07V [E] Gnd |
| Q804 | MHL_EN Driver | Pin [B] 1.365V [C] 0V [E] 0.07V |
| Q805 | MHL_OCP_EN Driver | Pin [B] 0.65V [C] 0.03V [E] Gnd |
| Q806 | VBUS_EN Driver | Pin [B] 0.68V [C] 0.07V [E] Gnd |
| Q3401 | Amp Mute Driver | Pin [B] 0.02V [C] 3.31V [E] Gnd |

| | | | |
|--|--|--|--|
| IC3401 | Audio Amp | Pin [1] 24.13V [2] 20.88V [3] 1.06V [4] Gnd [5] 24.16V [6] 1.06V [7] 1.06V [8] 24.16V [9] Gnd [10] 1.07V [11] 3.28V [12] 0V [13] n/c [14] n/c [15] n/c [16] n/c [17] n/c [18] n/c [19] n/c [20] n/c [21] n/c [22] n/c [23] n/c [24] n/c | Pin [25] n/c [26] n/c [27] n/c [28] 3.27V (Vcc In) [29] Gnd [30] n/c [31] n/c [32] n/c [33] n/c [34] 1.8V [35] Gnd [36] 1.4V [37] 1.44V [38] 1.64V [39] 1.14V [40] 3.27V [41] 3.27V [42] n/c [43] 3.27V [44] 3.27V [45] Gnd [46] Gnd [47] Gnd [48] 3.27V (Vcc In) |
| D822 | D823 | DDC_SCL_2/4 Pull_Up | D825 |
| Pin [A1] 0V [A2] 5.18V [C] 4.92V | Pin [A1] 0.07V [A2] 3.3V [C] 4.92V | | |



US1 DC-to-DC

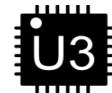
| Pin | DC |
|-----|-----------------|
| 1 | 5V |
| 2 | 2.41V |
| 3 | 5V |
| 4 | 0V |
| 5 | 11.89V |
| 6 | 11.89V |
| 7 | 0V |
| 8 | 8.41V |
| 9 | 8.42V |
| 10 | 0V |
| 11 | 4.95V |
| 12 | 4.95V |
| 13 | Gnd |
| 14 | Gnd |
| 15 | 11.89V (12V In) |
| 16 | 11.89V (12V In) |
| 17 | 16.83V |
| 18 | 16.67V (VDD) |
| 19 | 0V |
| 20 | 32.51V |



| Pin | DC |
|-----|-----------------|
| 21 | 32.34V |
| 22 | 0.61V |
| 23 | 0V |
| 24 | 0.6V |
| 25 | 0V |
| 26 | 3.31V |
| 27 | Gnd |
| 28 | 3.3V |
| 29 | 3.3V |
| 30 | 1.21V |
| 31 | Gnd |
| 32 | 1.24V |
| 33 | 0V |
| 34 | 3.31V |
| 35 | 3.33V |
| 36 | 3.33V |
| 37 | 0V |
| 38 | 11.89V (12V In) |
| 39 | 11.89V (12V In) |
| 40 | 0V |

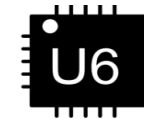
U3 DC-to-DC

| Pin | DC |
|-----|-------------------|
| 1 | 27.96V |
| 2 | (-5.8) |
| 3 | 27.85V |
| 4 | 6.87V (CLK1) |
| 5 | 6.85V (CLK2) |
| 6 | 6.85V (CLK3) |
| 7 | 6.84V (CLK4) |
| 8 | 6.84V (CLK5) |
| 9 | 6.83V (CLK6) |
| 10 | 27.46V (VGH) |
| 11 | (-5.8) (VGH_F) |
| 12 | 27.95V (VGH_Odd) |
| 13 | 27.43V (VGH_Even) |
| 14 | (-5.8) (VGL) |
| 15 | (-5.73) (VST) |
| 16 | (-5.79) (GIP_RST) |
| 17 | Gnd |
| 18 | 16.94V |
| 19 | 3.21V |
| 20 | 0V |
| 21 | 0V |
| 22 | 0V |
| 23 | 0V |
| 24 | 3.25V |



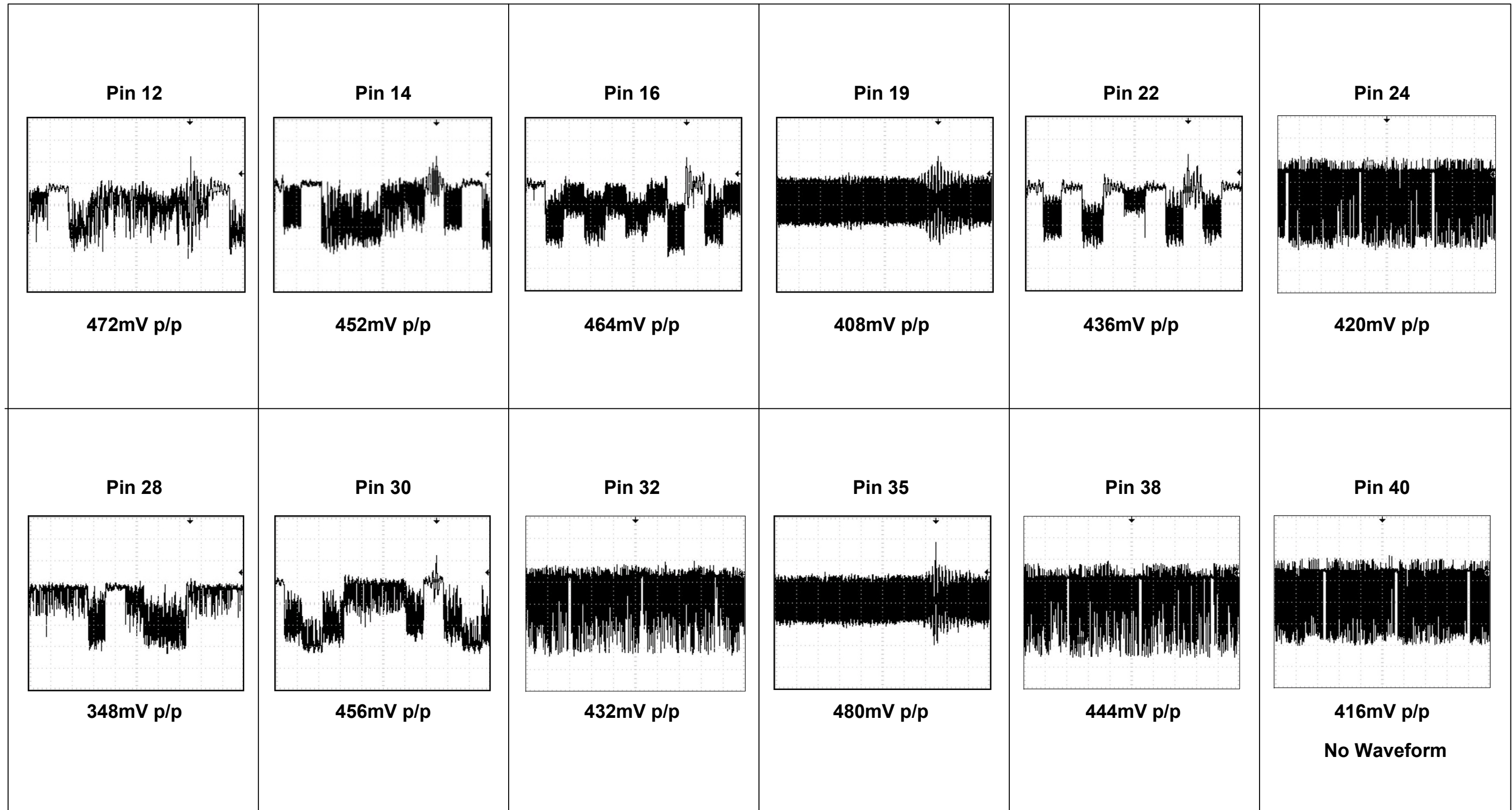
U6 DC-to-DC

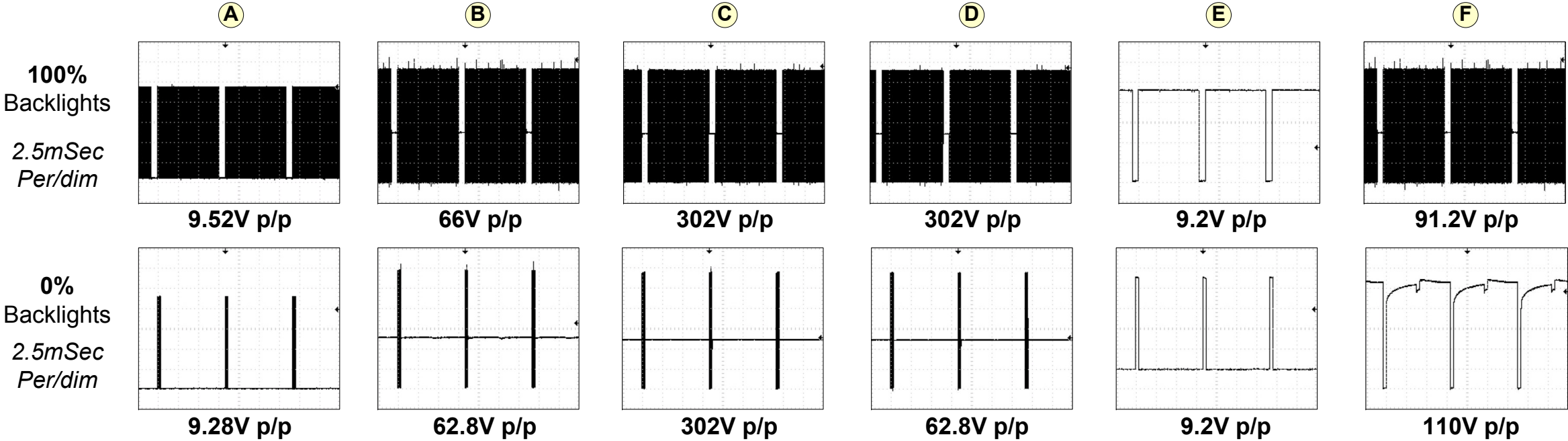
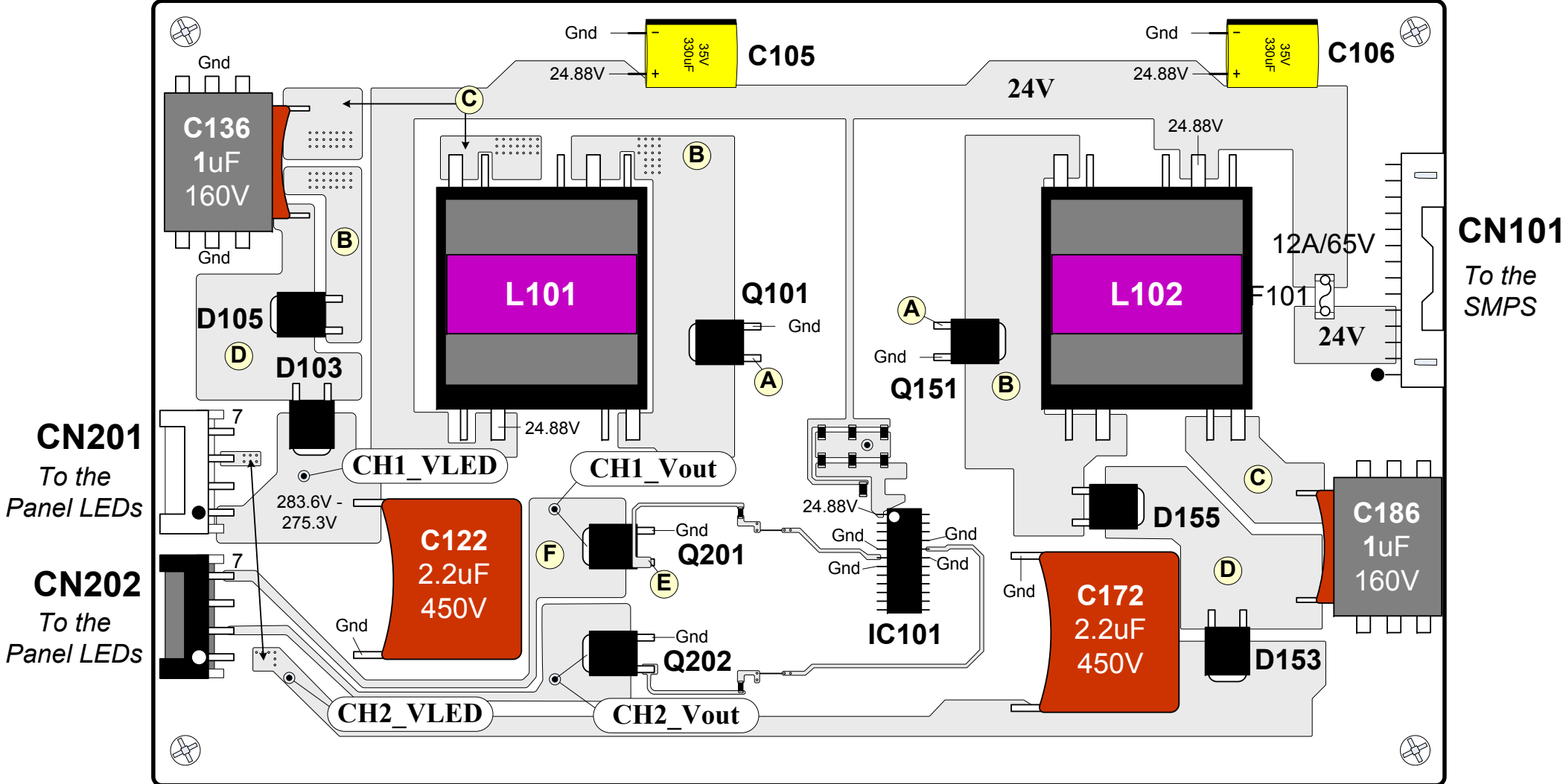
| Pin | DC |
|-----|--------------|
| 1 | 3.32V |
| 2 | Gnd |
| 3 | 3.32V |
| 4 | Gnd |
| 5 | 7.25V |
| 6 | 7.22V |
| 7 | 16.67V (VDD) |
| 8 | 16.67V (VDD) |
| 9 | Gnd |
| 10 | 14.25V |
| 11 | 13.61V |
| 12 | 12.67V |
| 13 | 10.87V |
| 14 | 6.49V |
| 15 | 4.59V |
| 16 | 8.42V |
| 17 | 8.42V |
| 18 | 3.59V |
| 19 | 2.95V |
| 20 | 16.67V |



60LN5400 P6401 LVDS Connector Video Waveforms

All P6401 LVDS signals are taken with SMPTE Color Bar signal input (1080P) Component Input.
All LVDS signals are "Differential Pairs". The ones shown are the "Positive" signal of the pair. The Negative signal looks exactly the same but flipped 180°. Scope Settings are 100mV per/division, 2.5uSec per/division.





INVERTER INFORMATION: (BACKLIGHTS)

Q44-Q48, Q57-Q67 are the Backlight ground return line drivers. The Backlights are broken down into 16 individual blocks. The 38V backlight B+ is routed to a block "anode side". The cathode side is then routed back to either CN5 or CN6 ground return line. When the Output is low, the Backlight being driven is bright and when they are high, the backlight being driven is dim. Each driver is being driven by a 180Hz pulse width modulated drive signal being provided by U110.

LOCAL DIMMING: There are a total of 16 individual blocks of backlights. Each individual driver can be manipulated by "Local Dimming". The control signals for Local Dimming is delivered via CN10 to U110. This way, if there is an area on the screen that is dark, the backlights driving that area can be pulled low. This helps with the overall "Black Floor" which helps with the Contrast Ratio and it also prevents light bleed.

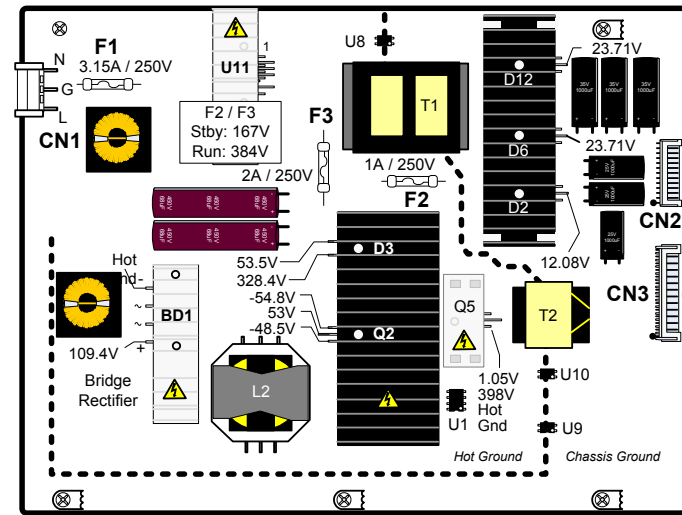
GLOBAL DIMMING: All the drivers can be manipulated as a group by Pulse width modulated dimming. Usually called P-DIM, however in this set it is called "ADJ" input via CN1 pin 2. It has a range of 1.53V (Dim) to 4.57V (Bright). [Video mode: Vivid, Energy Savings: Off] ADJ is manipulated by the customer's menu setting for Backlights which set the peak value. Then the Video processor monitors the overall average brightness level of the picture content to manipulate the ADJ value. Pulling the DC down with the picture is overall dim and pulling it up with the overall brightness content is bright.

The number on each driver indicates the pin being driven on CN5 and CN6, (see voltage table for each connector for details).

- (1) Pin 1 (ENA): Enable: (BL_On/Off from Main): Sent to the Inverter and turns on the Backlights.
- (2) Pin 2 (ADJ): Adjust or P-DIM: Sent to the Inverter and controls the backlight brightness. Controlled by (Cust. Menu → Video → Backlights). Range 0% to 100% directly proportional to DC voltage to Backlight brightness. P-DIM is actually a PWM signal.
- (3) Pin 4 (STB): or PWR_ON: turns on the 12V and 24V lines. It also turns on the Inverter 24V. Backlights are not on.
- (4) Pin 6 (5V): Is 0V, not used by the Main Board. Line is open on the Main.
- (5) Pin 9, 10 (12V): Is the Stand-By Voltage in this Set.
- (6) Pin 13, 14 (24V): Is 24V, but not used by the Main Board. Lines are open on the Main.

CN3 "SMPS Board" to "Main Board" CN1

| PIN | LABEL | STBY | RUN | Diode Check |
|-----------|-------|--------|-------------|-------------|
| (6) 13-14 | 24V | 0V | 23.70V | 0.48V |
| 11-12 | Gnd | Gnd | Gnd | Gnd |
| (5) 9-10 | 12V | 12.07V | 12.00V | OL |
| 7-8 | Gnd | Gnd | Gnd | Gnd |
| (4) 6 | 5V | 0V | 0V | OL |
| 5 | GND | Gnd | Gnd | Gnd |
| (3) 4 | STB | 0.13V | 3.03V | OL |
| 3 | Gnd | Gnd | Gnd | Gnd |
| (2) 2 | ADJ | 0V | 1.53V~4.57V | OL |
| (1) 1 | ENA | 0V | 3.47V | OL |



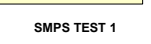
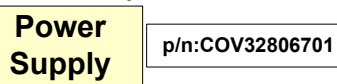
POWER SUPPLY and INVERTER (BACKLIGHT) TEST

Power Supply should be producing standby 12V.

TEST 1:
With PWR_ON: 33K between pin 10 and 4.
Apply Power.
24V is sent to the Inverter. Backlights are not on.
LED POWER IS 23.52V DURING TEST 1.
Ground Return Line (0.72V - 1.0V)

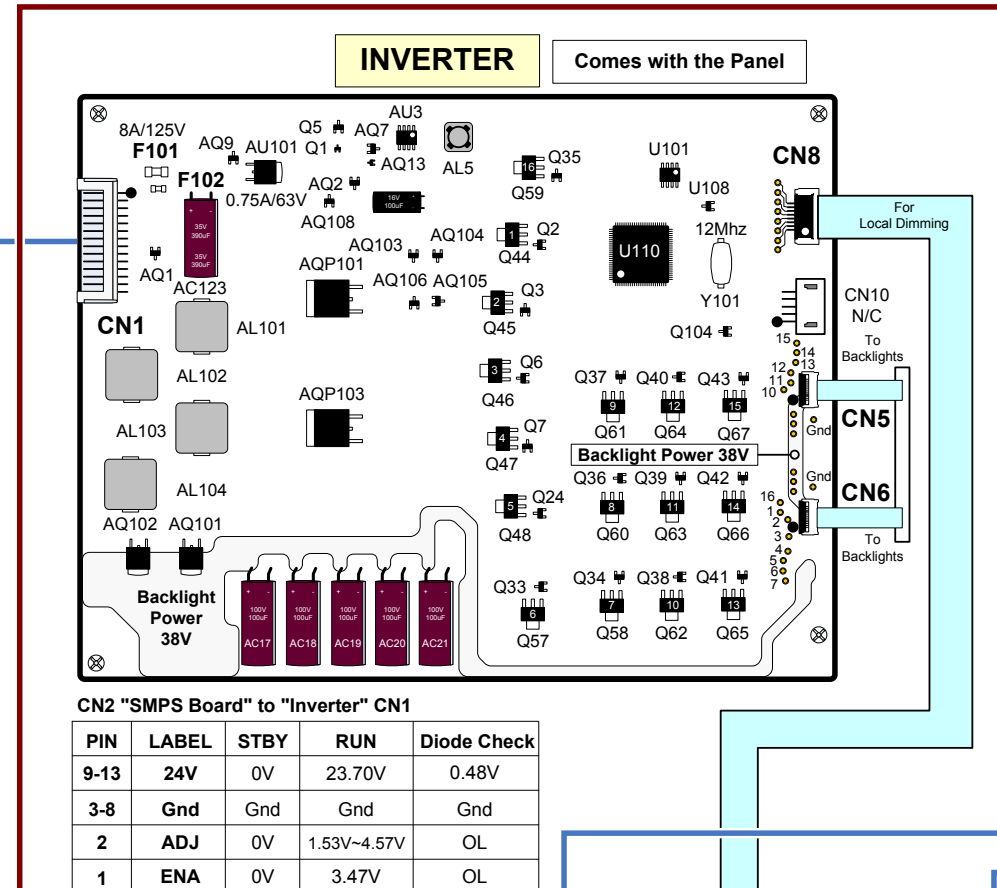
TEST 2:
With PWR_ON and DRV_ON:
Leave first jumper in place.
Add 2.4Meg resistor between pin 9 and pin 1.
Apply Power. Backlights are on.
LED POWER IS 38V DURING TEST 2.
LED Ground Return Line (1.09V - 1.39V)

Hot Ground Warning: Shock Hazard



65LB5200 INTERCONNECT DIAGRAM

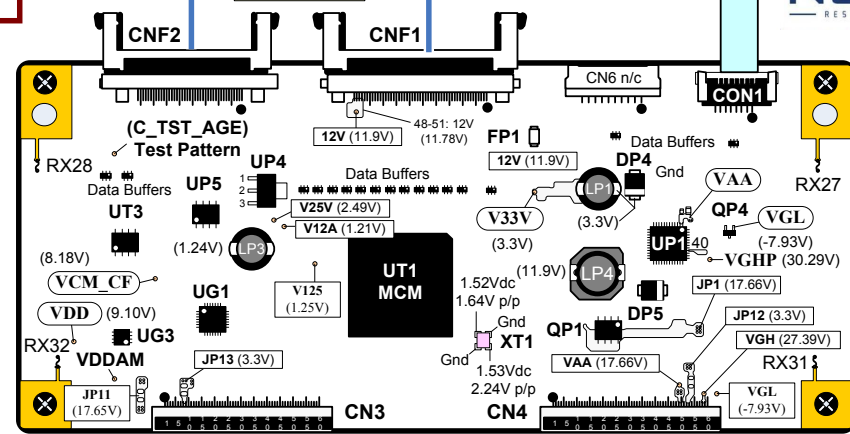
PANEL p/n:COV32665701



CN2 "SMPS Board" to "Inverter" CN1

| PIN | LABEL | STBY | RUN | Diode Check |
|------|-------|------|-------------|-------------|
| 9-13 | 24V | 0V | 23.70V | 0.48V |
| 3-8 | Gnd | Gnd | Gnd | Gnd |
| 2 | ADJ | 0V | 1.53V~4.57V | OL |
| 1 | ENA | 0V | 3.47V | OL |

Comes with the Panel T-CON



| Component | Pins | Voltage |
|-----------|-------------|---------|
| VDDAM | Pins 17, 18 | 9.10V |
| VCM_CF | Pins 13, 14 | 8.38V |
| VAA | Pins 11, 12 | 17.66V |
| V33V | Pins 8, 9 | 3.3V |
| VGL | Pins 5, 6 | -7.93V |
| VGH | Pins 2, 3 | 27.37V |
| VDDAM | Pins 43, 44 | 9.10V |
| VCM_CF | Pins 46, 47 | 8.38V |
| VAA | Pins 49, 50 | 17.66V |
| V33V | Pins 52, 53 | 3.3V |
| VGL | Pins 55, 56 | -7.93V |
| VGH | Pins 58, 59 | 27.37V |

CN8 "Inverter" to "T-CON" CON1

| PIN | LABEL | RUN | Diode Check |
|-----|---------|-------|-------------|
| 8 | Option2 | 3.47V | OL |
| 7 | Option1 | 3.47V | OL |
| 6 | Gnd | Gnd | Gnd |
| 5 | SPI_SDA | 3.41V | OL |
| 4 | V_SYNC | 3.47V | OL |
| 3 | SPI_SCK | 3.41V | OL |
| 2 | Gnd | Gnd | Gnd |
| 1 | SPI_EN | 3.47V | OL |

Local Dimming

CN5 "Inverter" to "The Panel Backlights"

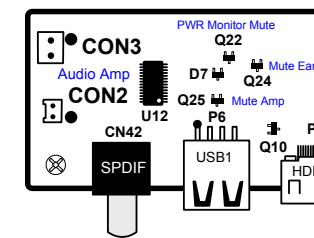
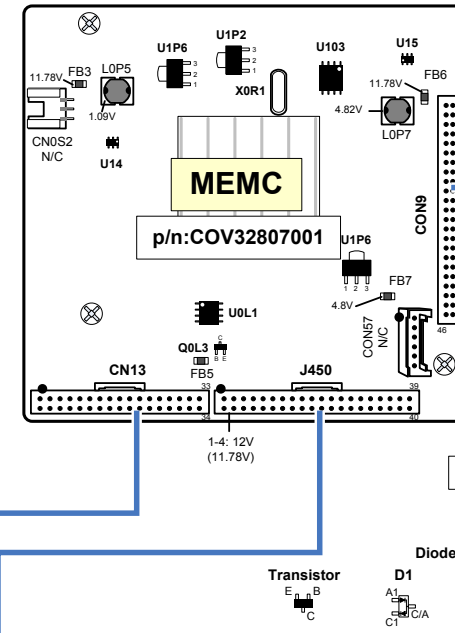
| PIN | LABEL | RUN | Diode Check |
|-----|-------|-------------|-------------|
| 12 | 15 | 1.54V~9.46V | OL |
| 11 | 14 | 1.69V~9.38V | OL |
| 10 | 13 | 1.56V~9.41V | OL |
| 9 | 12 | 1.59V~9.40V | OL |
| 8 | 11 | 1.72V~9.34V | OL |
| 7 | 10 | 1.78V~9.31V | OL |
| 6 | 9 | 1.59V~9.40V | OL |
| 5 | 8 | 1.86V~9.28V | OL |
| 4 | N/C | n/c | n/c |
| 1-3 | B+ | 38V | OL |

CN6 "Inverter" to "The Panel Backlights"

| PIN | LABEL | RUN | Diode Check |
|-------|-------|-------------|-------------|
| 10-12 | B+ | 38V | OL |
| 9 | N/C | n/c | n/c |
| 8 | 16 | 1.63V~9.38V | OL |
| 7 | 1 | 1.89V~9.36V | OL |
| 6 | 2 | 1.77V~9.44V | OL |
| 5 | 3 | 1.91V~9.41V | OL |
| 4 | 4 | 1.60V~9.42V | OL |
| 3 | 5 | 1.93V~9.42V | OL |
| 2 | 6 | 1.52V~9.51V | OL |
| 1 | 7 | 1.71V~9.45V | OL |

DIM OR DARK PICTURE:
Turn the Brightness, Contrast and Backlights all the way up. Confirm 38V CN5 pins 1-3 and CN6 pins 10-12. Confirm ADJ (P-DIM) is at least 3V. Using a 100Ω resistor, jump backlight grounding test points (1 through 16 on the inverter) to ground while observing the picture. The Backlights should brighten up in the Zone being controlled by that Test Point. If not, replace panel. If yes, replace the Inverter (if available).

For MEMC LVDS Waveforms see Pages 6-8 of the Interconnect diagram.



For DC voltages for Main board components see Pages 2-3 of the Interconnect diagram.

CN3 "Main Board" to "Ft IR Board"

| PIN | LABEL | STBY | RUN | Diode Check |
|-----|---------------|------|-------------|-------------|
| 1 | N/C | n/c | n/c | n/c |
| 2 | Key0-in | 0V | 1.53V~4.57V | OL |
| 3 | Key1-in | Gnd | Gnd | Gnd |
| 4 | GND | Gnd | Gnd | Gnd |
| 5 | +5V_Standby | 5V | 5V | 1.46V |
| 6 | GND | Gnd | Gnd | Gnd |
| 7 | IR_in | 3.3V | 3.3V | OL |
| 8 | GND | Gnd | Gnd | Gnd |
| 9 | LED_G | 3.3V | 3.3V | 1.92V |
| 10 | GND | Gnd | Gnd | Gnd |
| 11 | LED_G | 3.3V | 3.3V | OL |
| 12 | +3.3V_Standby | 3.3V | 3.3V | 0.71V |

p/n:COV32807201

Front IR



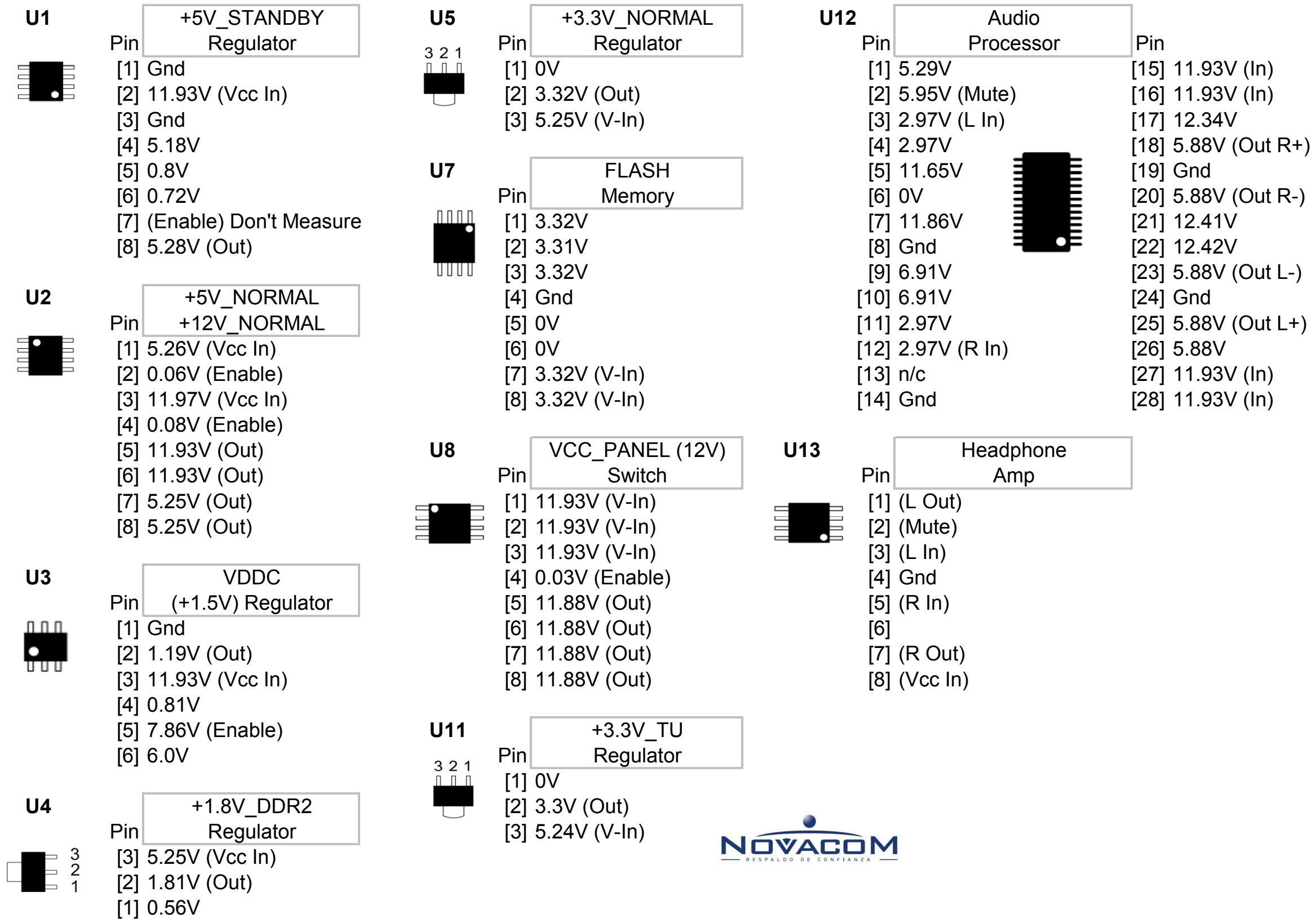
p/n:COV32807601

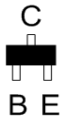
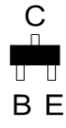


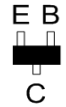

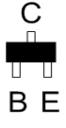


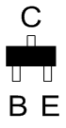
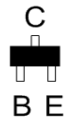


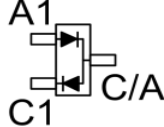
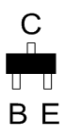
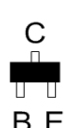
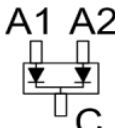


WARNING:
Be sure to install the screws in the T-CON board before applying power. Damage to the board will occur.

PANEL TEST (Internal Pattern)
Set Power Supply for TEST 2 condition. Remove both LVDS cables CNF1, CNF2. Jump 12V from the SMPS (Center leg of D2) to the T-CON fuse FP1. Jump 3.3V (V33V) to (C_TST_AGE) Test Point. Observe patterns on the screen.

For T-CON CN4 Waveforms see Page 5 of the Interconnect diagram.

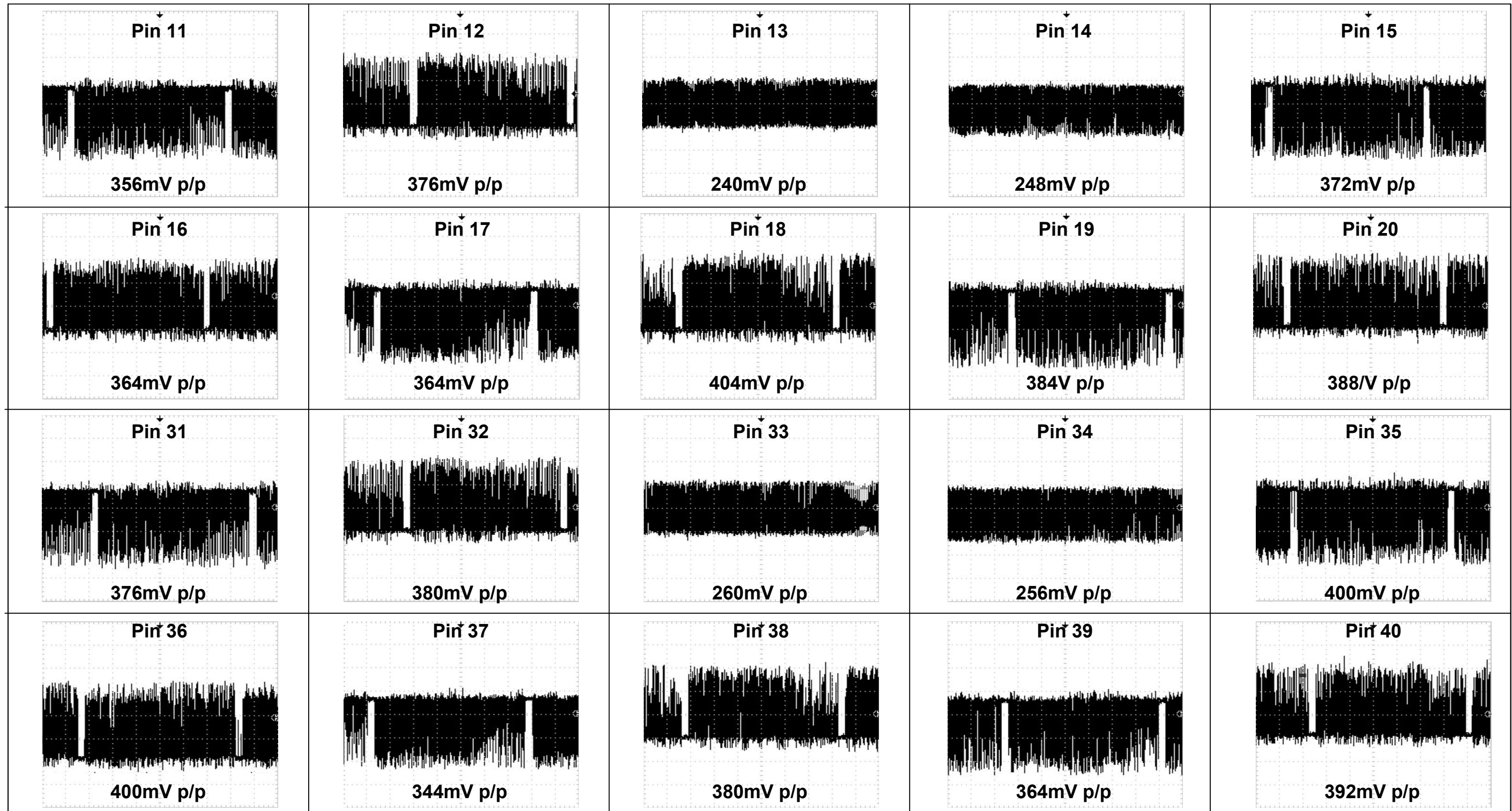


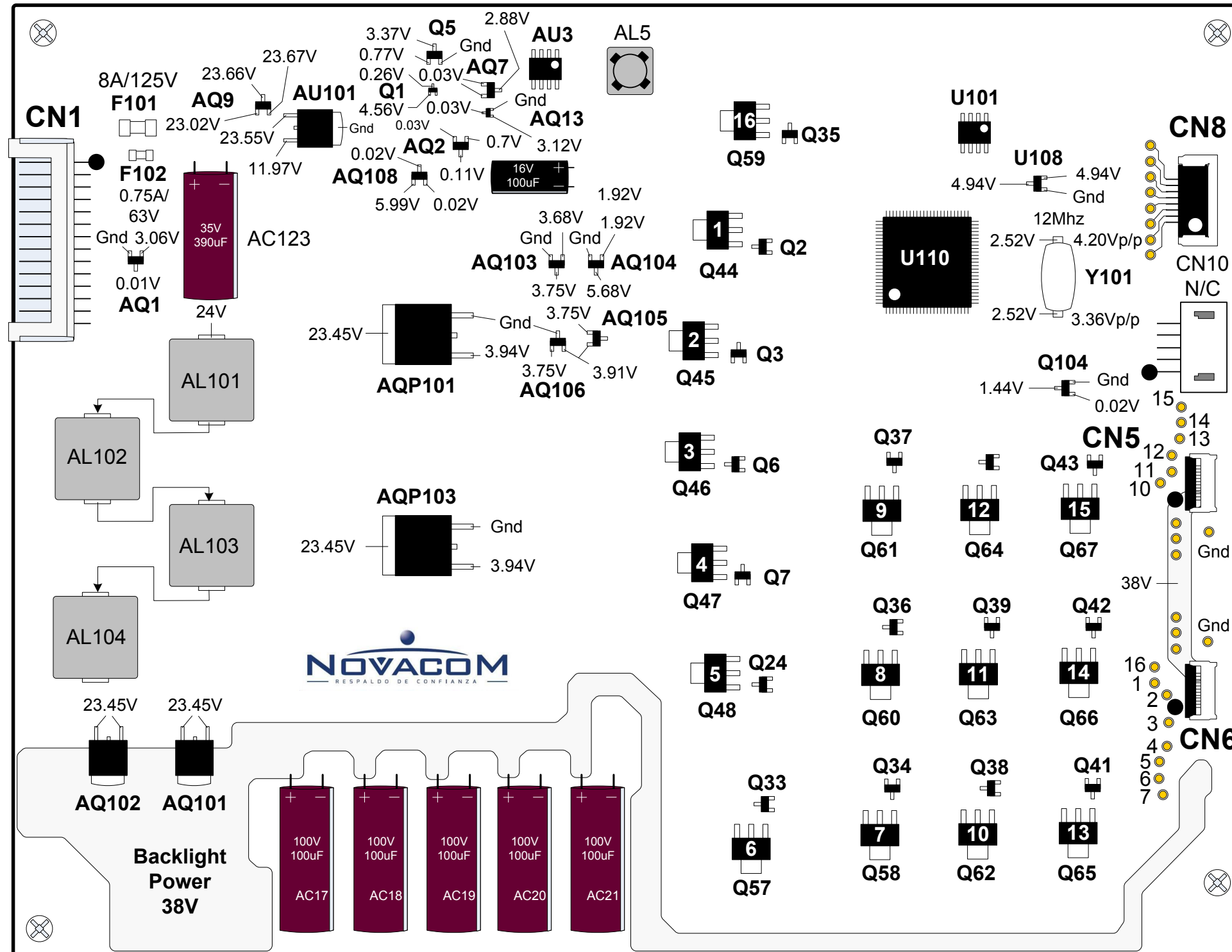
| | | |
|--|--|--|
| Q1  Pin Inverter Control [B] 0V [C] 3.51V [E] Gnd | Q7  Pin Drives Q6 [B] 0.7V [C] 0.04V [E] Gnd | Q22  Pin Power Monitor Mute [B] 5.24V [C] (-0.14V) [E] 0V |
| Q2  Pin Backlight Control [B] 0.04V [C] 4.53V [E] Gnd | Q9  Pin MHL_Det Switch Changes to HDMI_Det [B] 0.09V [C] 0.03V [E] Gnd | Q24  Pin Driver for Mute Ear [B] 0V [C] 3.06V [E] Gnd |
| Q3  Pin Turns on U2 +5V_Normal Reg [B] 0.65V [C] 0.06V [E] Gnd | Q10  Pin HDMI3-HPD Driver (Hot-Swap) [B] 0V [C] 0V [E] Gnd | Q25  Pin Driver for Mute Amp [B] 0V [C] 5.95V [E] Gnd |
| Q4  Pin Turns on U2 +12V_Normal Reg [B] 0.7V [C] 0.08V [E] Gnd | Q11  Pin HDMI1-HPD Driver (Hot-Swap) [B] 0V [C] 0V [E] Gnd | |
| Q5  Pin Reset Switch [B] Don't Measure [C] Don't Measure [E] Don't Measure | Q17  Pin AVOUT-V 2nd Driver (AV TP) [B] 4.54V [C] 2.4V [E] 524V | D1  Pin Reset Speed-Up [A1] 5.21V [C1] 5.04V [C/A] Gnd |
| Q6  Pin LED_G Driver [B] 0.04V [C] 3.32V [E] Gnd | Q18  Pin AVOUT-V 1st Driver (AV TP) [B] 1.92V [C] 4.54V [E] 1.26V | D7  Pin Power Mute To Q25 [A1] 0.05V [A2] (-0.09V) [C] Gnd |



65LB5200 MAIN CN2 LVDS to MEMC COF9Connector Video Waveforms

All Main Board CN2 LVDS signals are taken with SMPTE Color Bar signal input (1080P) Component Input.
All LVDS signals are "Differential Pairs". Scope Settings are 100mV per/division, 2.5mSec per/division.





AU3

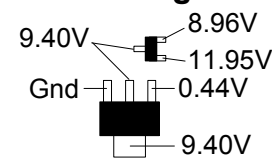
- 1) 9.4V
- 2) Gnd
- 3) 0.03V
- 4) 1.24V
- 5) 2.87V
- 6) Gnd?
- 7) 23.68V
- 8) 4.96V

U101

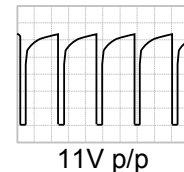
- 1) 0.08V
- 2) 0.95V
- 3) 3.46V
- 4) Gnd
- 5) 0.09V
- 6) 0.34V (B/L goes off)
- 7) 3.46V
- 8) 3.47V

Q44-Q48, Q57-Q67 and Q2-Q3, Q6-Q7, Q24, Q33-Q43
All 16 circuits have similar voltages.

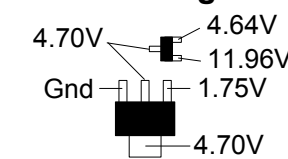
0% Backlights



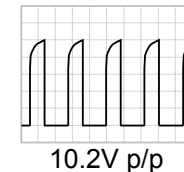
180Hz



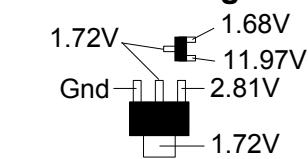
50% Backlights



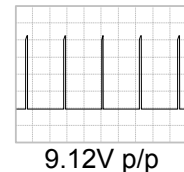
180Hz



100% Backlights

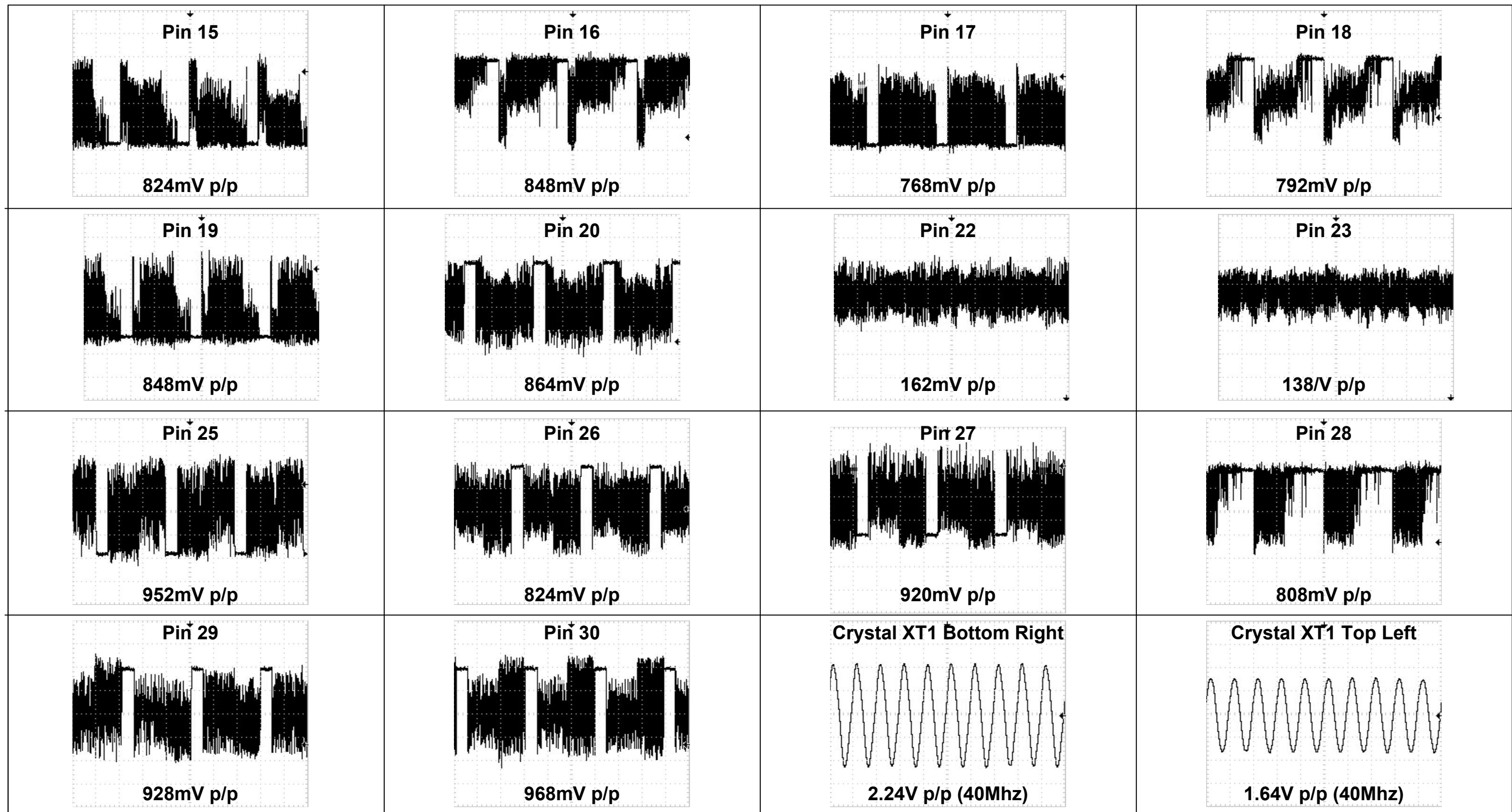


180Hz



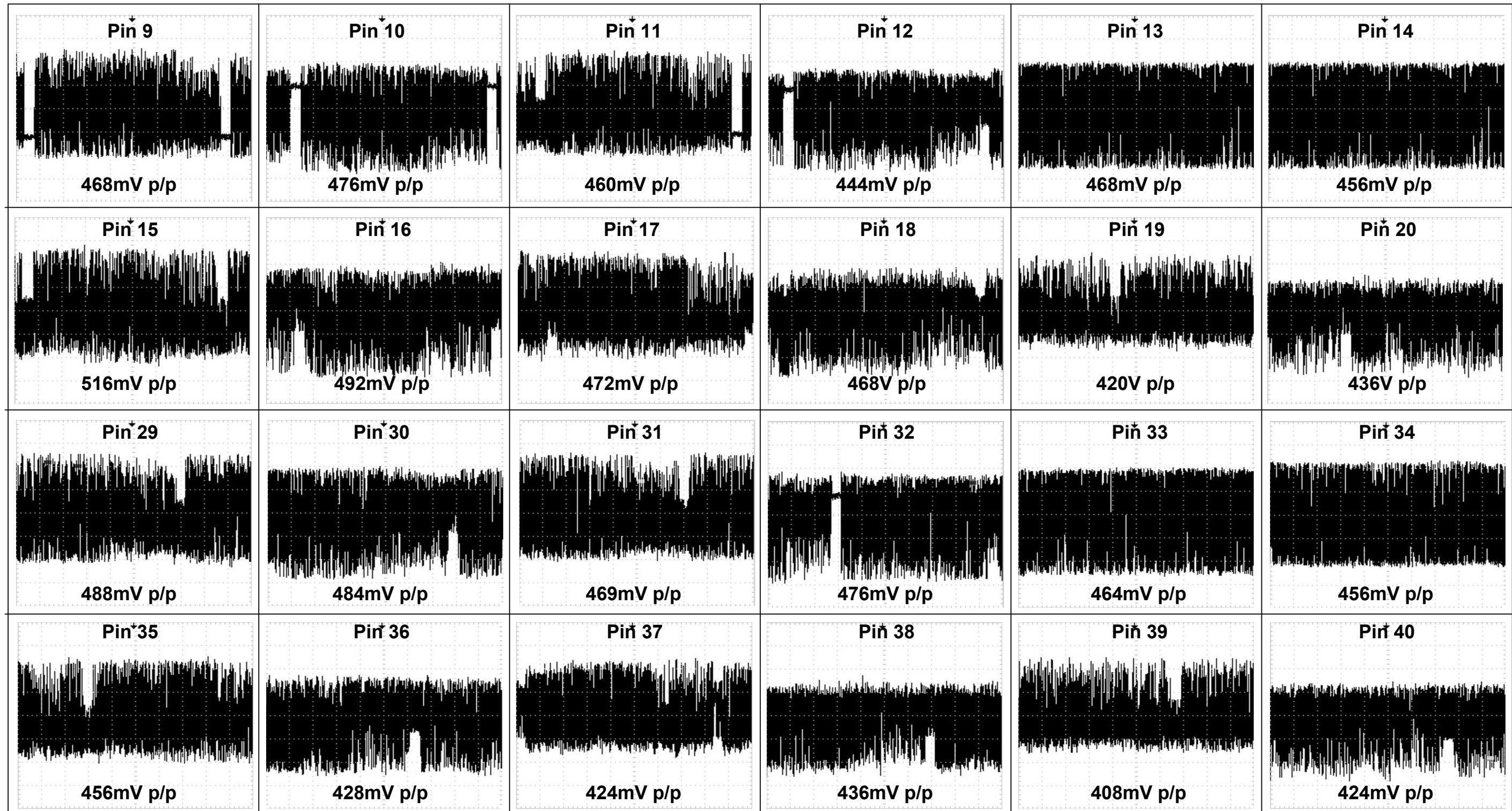
65LB5200 T-CON CN4 Connector to Panel Video and XT1 Crystal Waveforms

All T-CON Board CN4 Video signals are taken with SMPTE Color Bar signal input (1080P) Component Input.
 All LVDS signals are "Differential Pairs". Scope Settings are 200mV per/division, 5mSec per/division.
 Except the Crystal which is 500mV per/division, 25nSec per/division.



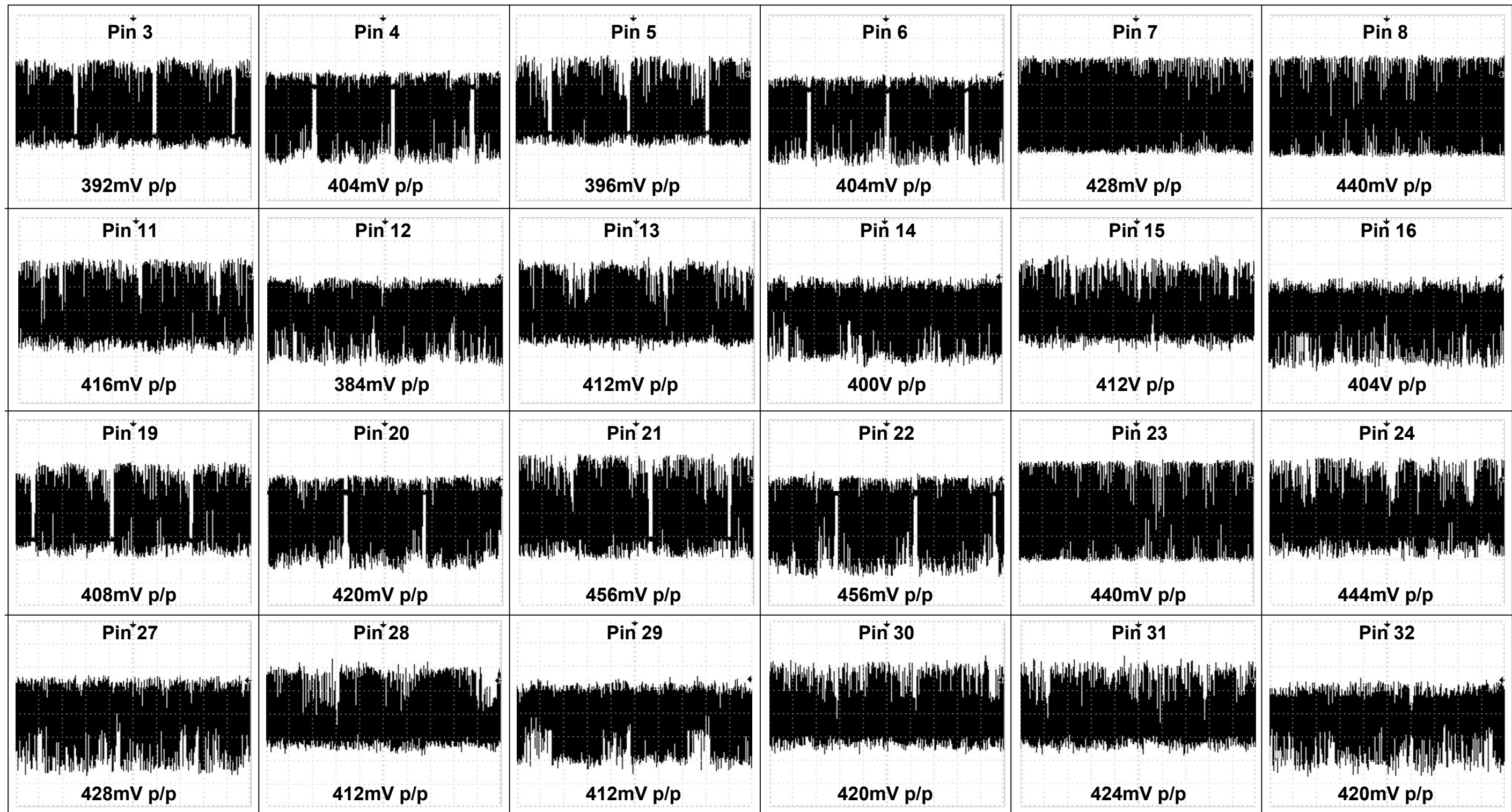
65LB5200 MEMC J450 LVDS to T-CON CNF1 Connector Video Waveforms

All MEMC Board J450 LVDS signals are taken with SMPTE Color Bar signal input (1080P) Component Input.
 All LVDS signals are "Differential Pairs". Scope Settings are 100mV per/division, 1mSec per/division.



65LB5200 MEMC CN13 LVDS to T-CON CNF2 Connector Video Waveforms

All MEMC Board CN13 LVDS signals are taken with SMPTE Color Bar signal input (1080P) Component Input.
 All LVDS signals are "Differential Pairs". Scope Settings are 100mV per/division, 2.5mSec per/division.



65UF9500 INTERCONNECT DIAGRAM

P801 White "SMPS Board" to the "Backlights"

| Pin | Label | Run | Diode Check | TP |
|-----|-------|--------------|-------------|------|
| 1 | VC_6 | 3.77V-15.7V | OL | P822 |
| 2 | VC_5 | 4.11V-15.7V | OL | P817 |
| 3 | LED+ | 46.3V-46.55V | OL | P211 |
| 4 | VC_4 | 4.00V-15.70V | OL | P821 |
| 5 | LED+ | 46.3V-46.55V | OL | P211 |
| 6 | VC_3 | 4.35V-15.77V | OL | P818 |
| 7 | VC_2 | 4.35V-15.77V | OL | P820 |
| 8 | VC_1 | 4.43V-15.90V | OL | P819 |

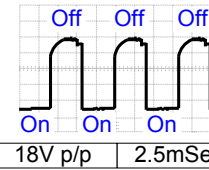
P802 Black "SMPS Board" to the "Backlights"

| PIN | LABEL | RUN | Diode ✓ | TP |
|-----|-------|--------------|---------|------|
| 1 | VC_7 | 3.85V-15.74V | OL | P816 |
| 2 | VC_8 | 4.03V-46.55V | OL | P811 |
| 3 | LED+ | 46.3V-46.55V | OL | P211 |
| 4 | VC_9 | 4.00V-15.70V | OL | P815 |
| 5 | LED+ | 46.3V-46.55V | OL | P211 |
| 6 | VC_10 | 4.33V-15.75V | OL | P812 |
| 7 | VC_11 | 4.58V-15.81V | OL | P814 |
| 8 | VC_12 | 4.60V-15.66V | OL | P813 |

P201 "SMPS Board" to "MAIN Board" P2600

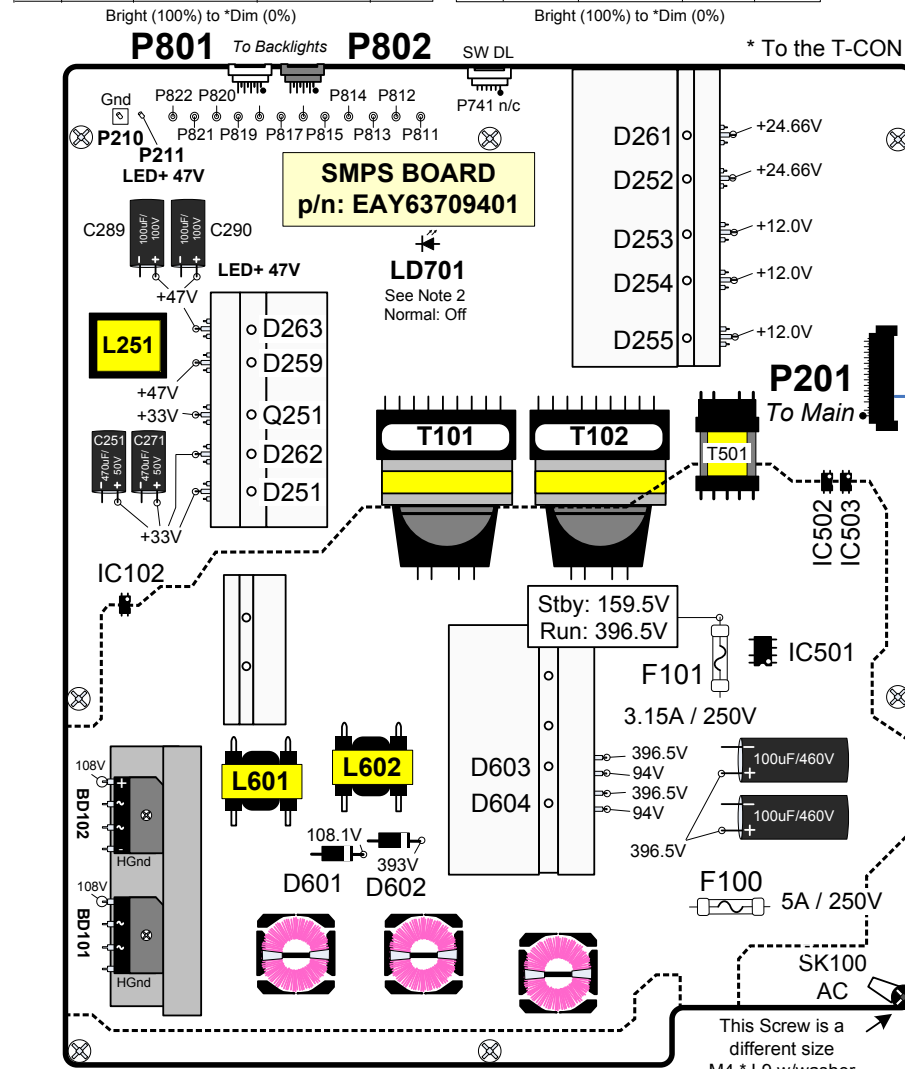
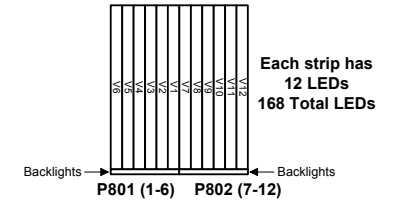
| Pin | Label | STBY | Run | Diode Check |
|-------|------------|-------|-------------|-------------|
| 28 | *Vsync | 0V | 0.02V | OL |
| 27 | *SCLK | 0V | 0.05V | OL |
| 26 | *Gnd | Gnd | Gnd | Gnd |
| 25 | *SCLK | 0V | 0.04V | OL |
| 23-24 | Gnd | Gnd | Gnd | Gnd |
| 18-22 | 24V | 0V | 24.80V | 1.10V |
| 16-17 | Gnd | Gnd | Gnd | Gnd |
| 11-15 | 12V | 0V | 12.13V | 0.48V |
| 9-10 | Gnd | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.56V | 3.55V | OL |
| 6 | Gnd | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.56V | 3.55V | OL |
| 4 | (4) P-DIM2 | 0V | 0.92V | OL |
| 3 | (3) P-DIM | 0V | 0.16V~2.76V | OL |
| 2 | (2) DRV-ON | 0V | 3.46V | OL |
| 1 | (1) PWR-ON | 0V | 3.41V | 1.17V |

DARK AREA ON SCREEN: If a part of the picture is exhibiting a dimmer backlight level than the other or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not, Check the P-DIM level, it should rise with the percentage shown on screen. Unplug CN5 (T-CON to SMPS) Local Dimming signals. If problem is fixed, assume T-CON, if not perform Block test below.

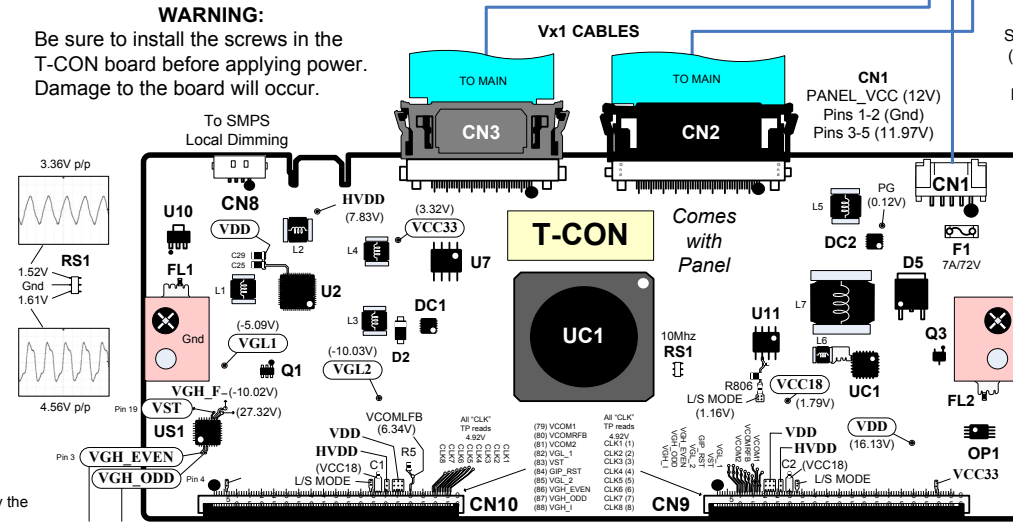


LED ONE BLOCK TEST (DIM OR DARK PICTURE AREA):
Turn the Brightness, Contrast and Backlights all the way up. Confirm 47V on P211. Confirm P-DIM is approx. 3V. You can turn on a Block of LEDs by using a 1K ohm resistor from any test point P811 - P822 to Ground. The Power Supply must be producing the 47V for the Backlight B+. Failure to use a resistor will damage the panels backlight and may also damage the power supply.

BACKLIGHT STRUCTURE



PANEL TEST:
To run the Panel Test (Testing the T-CON without the Main board), simply unplug CN2 or CN3. Apply 12V to the Fuse F1 on the T-CON. Apply power to the set. (Backlights and Power Supply should already be working). T-CON outputs color patterns on the screen. This test confirms the T-CON, Power Supply, Panel and Backlights are working normally.



WARNING: Be sure to install the screws in the T-CON board before applying power. Damage to the board will occur.

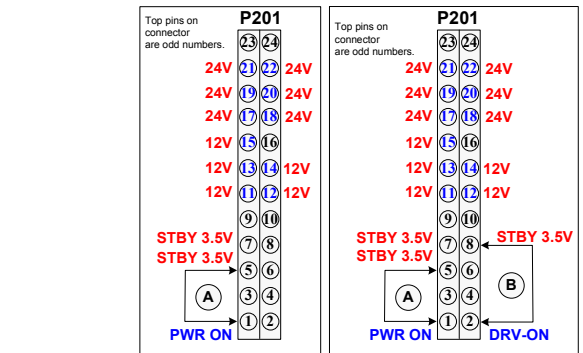
Warning: Do not add or remove jumpers with Power Applied.

NOTE: The pin numbers on P2600 on the Main board are different than P201 on the SMPS. The pins denoted on the left are for P201, but use the Main board side to insert Jumpers.

SMPS TEST 1: To Force Power Supply On without the Main Board.
Disconnect the P2600 on the Main board. (A) Jump pin 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main.

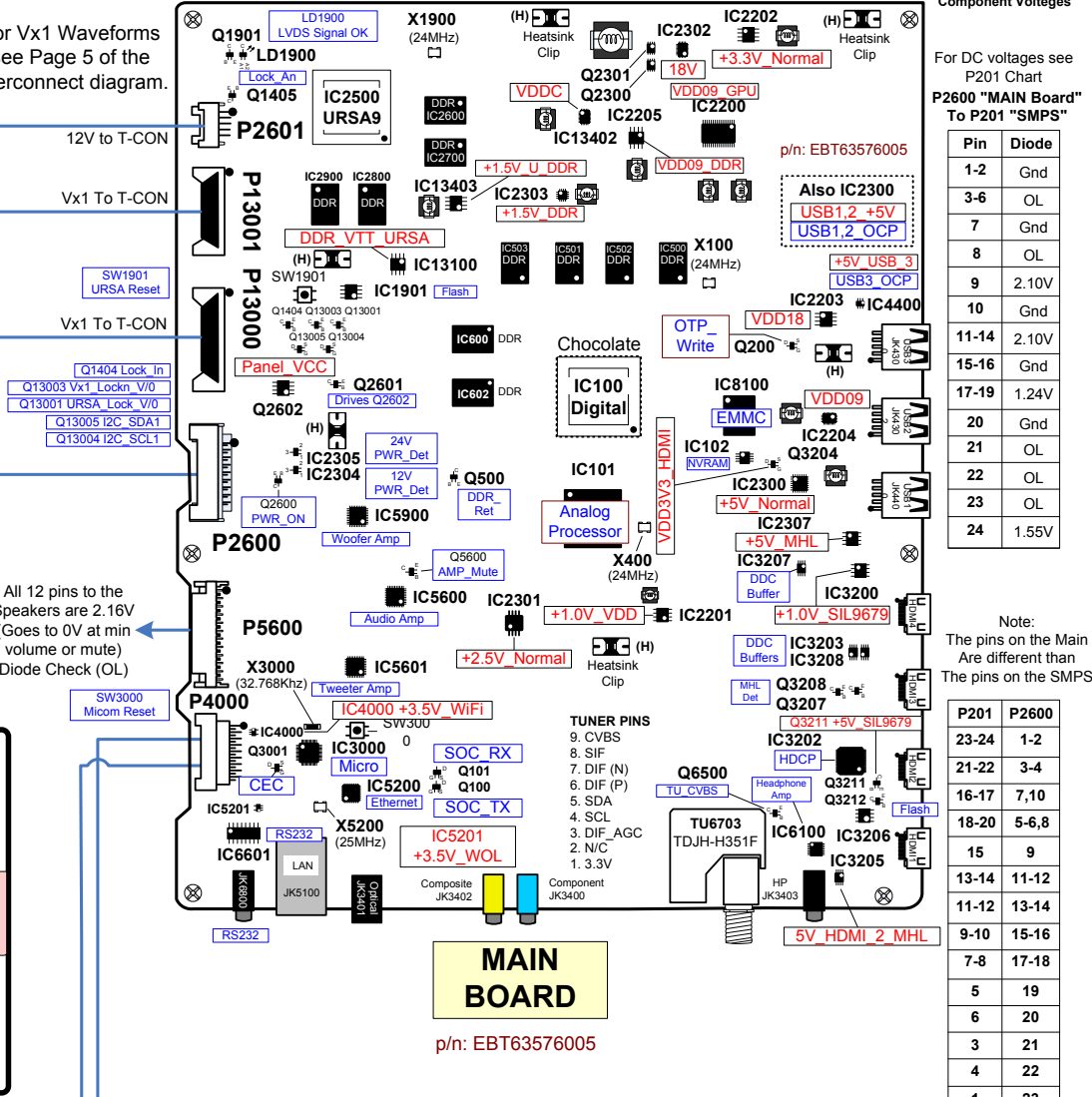
SMPS TEST 2: (Turning on the Backlights)
(B) Jump pin 8 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now read to 45V.

NOTE: If P801 or P802 is disconnected, the backlights power will come on, start at 37.7V climb to 48V, the fallback to 47.87V. 1/2 of the Backlights will be on.



168 Total LEDs, 84 LEDs per/Strip.
2 boards per/strip. (42 LEDs per/board) 12 columns (Blocks or Zones).
14 LEDs per/Block
6 on the left are controlled by P801, 6 on the right are controlled by P802

PANEL p/n: EAJ63089101



For Vx1 Waveforms see Page 5 of the Interconnect diagram.

For DC voltages see P201 Chart P2600 "MAIN Board" To P201 "SMPS"

| Pin | Label | STBY | Run | Diode ✓ |
|-----|---------------|-------|-------|---------|
| 1 | Gnd | Gnd | Gnd | Gnd |
| 2 | 3.5V_WOL | 0V | 3.49V | OL |
| 3 | BT_RESET | 0V | 3.39V | OL |
| 4 | WiFi_DM | 0V | 0V | 1.30V |
| 5 | Gnd | Gnd | Gnd | Gnd |
| 6 | WiFi_DP | 1.16V | 0V | 1.30V |
| 7 | WOL (WiFi On) | 0V | 0V | 1.90V |
| 8 | Gnd | Gnd | Gnd | Gnd |

For DC voltages see P201 Chart P2600 "MAIN Board" To P201 "SMPS"

















































| Pin | Diode |
|-------|-------|
| 1-2 | Gnd |
| 3-6 | OL |
| 7 | Gnd |
| 8 | OL |
| 9 | 2.10V |
| 10 | Gnd |
| 11-14 | 2.10V |
| 15-16 | Gnd |
| 17-19 | 1.24V |
| 20 | Gnd |
| 21 | OL |
| 22 | OL |
| 23 | OL |
| 24 | 1.55V |

Note: The pins on the Main Are different than the pins on the SMPS

Bottom Center of Set Front IR / Joy Stick
p/n: MAZ64123603

Bottom Center of Set WiFi / M-Remote
p/n: EAB63129202

65UF9500 Main Board Component Voltages

| | | | | | |
|--|---|--|--|---|---|
| IC102  NVRAM Memory Pin [1] Gnd [2] Gnd [3] Gnd [4] Gnd [5] 2.62V [6] 2.45V [7] Gnd [8] 3.32V | IC2205  (VDD09_DDR) Regulator Pin [1] 3.47V (Enable) [2] 0.78V [3] 5.27V [4] 2.51V [5] Gnd [6] 0.95V (Out) [7] 5.94V [8] 12.04V (In) | IC3200  (+1.0V_SIL9679) Regulator Pin [1] n/c [2] 3.27V [3] 3.32V (In) [4] 5.27V (Enable) [5] n/c [6] 1.01V (Out) [7] 0.6V [8] Gnd | IC3208  DDC (SCL/SDA) 3 Buffer Pin [1] 3.32V (in) [2] 3.32V [3] 3.32V [4] Gnd [5] 5.27V (Enable) [6] 5.03V [7] 5.03V [8] 5.27V (In) | Q100  SOC_TX Switch Pin [G] 3.31V [S] 3.31V [D] 3.30V | Q2301  18V Regulation CTL Pin [1] (PGnd) [2] (PGnd) [3] (PGnd) [4] 1.81V (Drive) [5] 18.66V (Out) [6] 18.66V (Out) [7] 18.66V (Out) [8] 18.66V (Out) |
| IC1901  SPI FLASH Memory Pin [1] 3.30V [2] 3.28V [3] 2.22V [4] Gnd [5] 3.30V [6] 0V [7] 3.30V [8] 3.31V (In) | IC2301  (+2.5V_NORMAL) Regulator Pin [1] n/c [2] 3.46V (ctrl) [3] 3.31V (in) [4] 5.12V (vctrl) [5] n/c [6] 2.52V (out) [7] 0.61 [8] Gnd | IC3203  DDC (SCL/SDA) 1 Buffer Pin [1] 3.32V (in) [2] 3.32V [3] 3.32V [4] Gnd [5] 5.27V (Enable) [6] 5.03V [7] 5.03V [8] 5.27V (In) | IC4000  +3.5V_WiFi Regulator Pin [1] 3.50V (Out) [2] Gnd [3] 0.19V n/c [4] 3.49V (OCP Out) [5] 3.51V (Vcc In) | Q101  SOC_RX Switch Pin [G] 3.31V [S] 3.31V [D] 3.30V | Q2600  PWR_On Switch Pin [B] 2.82V [E] 3.53V [C] 3.41V |
| IC2201  +1.0V_VDD Regulator Pin [1] 3.47V (Enable) [2] 0.77V [3] 5.26V [4] 2.51V [5] Gnd [6] 1.03V (Out) [7] 5.95V [8] 12.05V (Vcc In) | IC2304  PWR_Det 12V Sense Pin [1] Gnd [2] 3.72V (Out) [3] 3.72V (In) | IC3205  (+5V_HDMI_2_MHL) Switch Pin [1] Gnd [2] 5.27V (In) [3] 5.27V (In) [4] 3.48V On (MHL_Det) 0V off [5] n/c [6] 5.27V On (0V off Out) [7] 5.27V On (0V off Out) [8] 5.27V On (0V off Out) | IC4400  +5V_USB_1 Regulator Pin [1] 5.12V (In) [2] Gnd [3] 3.30V (Enable) [4] 3.32V (USB_OCD1) [5] 0.41V [6] 5.12V (Out) | Q200  OTP_WRITE Switch Pin [G] 1.84V [S] 1.84V [D] 0V | Q2601  Drives Q2602 Panel_CTL Pin [E] Gnd [B] 0.67V [C] 0.11V |
| IC2202  (+3.3V_NORMAL) Regulator Pin [1] 3.42V (Enable) [2] 0.76V [3] 5.42V [4] 5.40V [5] Gnd [6] 3.36V (Out) [7] 8.69V [8] 12.01V (Vcc In) | IC2305  PWR_Det 24V Sense Pin [1] Gnd [2] 3.76V (Out) [3] 3.72V (In) | IC3206  SPI FLASH Memory Pin [1] 3.31V [2] 0.17V [3] 0.26V [4] Gnd [5] 0.17V [6] 0.16V [7] 3.31V [8] 3.31V (In) | IC5201  +3.5V_WiFi Regulator Pin [1] 3.51V (Out) [2] Gnd [3] 0.08V n/c [4] 3.51V (OCP Out) [5] 3.51V (Vcc In) | Q500  DDR_RET Buffer Pin [B] 0V [C] 1.54V [E] Gnd | Q3001  CEC Bi-Directional Pin [G] 3.51V [S] 3.48V [D] 3.43V |
| IC2203  (VDD18) Regulator Pin [1] n/c [2] 3.46V (ctrl) [3] 3.49V (3.5V_ST In) [4] 5.12V (in) [5] n/c [6] 1.84V (out) [7] 0.60V [8] Gnd | IC2307  (+5V_MHL) Regulator Pin [1] 12.12V [2] 25.08V (Vcc In) [3] 5.27V (Out) [4] Gnd [5] 0.81V [6] 0.23V [7] 3.48V (Enable) [8] 0.49V | IC3207  DDC (SCL/SDA) 4 Buffer Pin [1] 3.31V (in) [2] 3.32V [3] 3.32V [4] Gnd [5] 5.27V (Enable) [6] 5.03V [7] 5.03V [8] 5.27V (In) | IC13100  DDR_VTT_URSA Switch Pin [1] 1.51V (in) [2] Gnd [3] 0.75V [4] 0.75V (out) [5] n/c [6] 3.31V (Enable) [7] n/c [8] n/c | Q1404  Drives Q1405 LOCKAn Pin [E] Gnd [B] 0.19V [C] 0.64V | Q3204  VDD3V3_HDMI Switch Pin [G] 5.27V [S] 3.32V [D] 3.32V |
| Q3212  Drives Q3211 5V_SIL9679 Pin [B] 0.78V [C] 0V (Out) [E] Gnd | Q2602  Panel_VCC Switch Pin [1] 12.05V (In) [2] 12.05V (In) [3] 12.05V (In) [4] 1.98V (Enable) [5] 12.05V (Out) [6] 12.05V (Out) [7] 12.05V (Out) [8] 12.05V (Out) | Q6500  TU_CVBS Buffer Pin [B] 1.47V [C] Gnd [E] 2.17V | IC13403  +1.5V_DDR Regulator Pin [1] 3.49V (Enable) [2] 0.76V [3] 5.23V [4] 2.48V [5] Gnd [6] 1.53V (Out) [7] 6.52V [8] 12.04V (+11.61V In) | Q1405  LOCKAn Switch Pin [E] Gnd [B] 0.64V [C] 0.07V | Q3207  Drives Q3208 MHL_Det Pin [B] 3.52V [C] 0V (Out) [E] 3.52V |
| Q3211  (+5V_SIL9679) Switch Pin [B] 0.02V [C] 0V [E] 0.05V | Q5600  Amp Mute Driver Pin [B] 0V [C] 3.30V [E] Gnd | Q13001  Drives Q13003 Pin [E] Gnd [B] 0.03V [C] 1.23V | Q2300  18V Regulation CTL Pin [1] 18.66V (In) [2] 18.66V (In) [3] 18.66V (In) [4] 1.18V (Drive) [5] 18.60V (Out) [6] 18.60V (Out) [7] 18.60V (Out) [8] 18.60V (Out) | Q1901  Drives LD1900 Pin [E] 0.72V [B] 0.07V [C] Gnd | Q13005  I2C_SDA1 Switch Pin [G] 3.29V [S] 3.29V [D] 3.28V |
| Q13003  Activates Vx1_LOCKn_V Pin [B] 0.62V [C] 0.10V [E] Gnd | Q13004  I2C_SCL1 Switch Pin [G] 0.62V [S] 0V [D] 0.95V | Q13005  I2C_SDA1 Switch Pin [G] 3.29V [S] 3.29V [D] 3.28V | Q3208  MHL_Det Switch Pin [B] 0V (MHL_Det) [C] 3.52V On / 0V Off (Out) [E] 3.50V | Q3208  MHL_Det Switch Pin [B] 0V (MHL_Det) [C] 3.52V On / 0V Off (Out) [E] 3.50V | Q3211  (+5V_SIL9679) Switch Pin [B] 0.02V [C] 0V [E] 0.05V |

IC2200
VDD09_GPU Regulator

| Pin | Voltage | Pin | Voltage |
|------|--------------|------|-------------|
| [1] | 3.52V (En) | [17] | 0.61V |
| [2] | 3.52V (En) | [18] | 1.06V(Out) |
| [3] | Gnd | [19] | 8.03V |
| [4] | Gnd | [20] | 1.09V (Out) |
| [5] | (+12.03V In) | [21] | 1.09V (Out) |
| [6] | (+12.03V In) | [22] | 2.04V |
| [7] | Gnd | [23] | 0.45V |
| [8] | Gnd | [24] | 0.40V |
| [9] | 6.52V | [25] | Gnd |
| [10] | (+12.03V In) | [26] | 0.27V |
| [11] | (+12.03V In) | [27] | 2.07V |
| [12] | (+12.03V In) | [28] | 0.96V (Out) |
| [13] | Gnd | [29] | 0.96V (Out) |
| [14] | Gnd | [30] | 7.92V |
| [15] | 3.34V | [31] | 0.96V (Out) |
| [16] | 3.34V | [32] | 0.60V |

IC2204
VDD09 Regulator

| Pin | Voltage | Pin | Voltage |
|------|----------------|------|-------------|
| [1] | 1.11V | [15] | 12.04V (In) |
| [2] | 5.06V | [16] | 12.04V (In) |
| [3] | 3.51V (Enable) | [17] | 12.04V (In) |
| [4] | 5.99V | [18] | 12.04V (In) |
| [5] | n/c | [19] | 12.04V (In) |
| [6] | 0.96V (Out) | [20] | 5.06V |
| [7] | 0.96V (Out) | [21] | 5.05V |
| [8] | 0.96V (Out) | [22] | Gnd |
| [9] | 0.96V (Out) | [23] | 5.05V |
| [10] | Gnd | [24] | 0.93V |
| [11] | Gnd | [25] | 0.38V |
| [12] | Gnd | [26] | Gnd |
| [13] | Gnd | [27] | Gnd |
| [14] | Gnd | [28] | Gnd |

IC2300
+5V_Normal Regulator

| Pin | Voltage | Pin | Voltage |
|------|------------------|------|--------------|
| [1] | 24.04V (In) | [15] | 3.23V (OCP2) |
| [2] | 24.04V (In) | [16] | 5.12V |
| [3] | 24.04V (In) | [17] | 5.12V |
| [4] | Gnd | [18] | 12.00V |
| [5] | Gnd | [19] | 5.12V (Out) |
| [6] | Gnd | [20] | 5.12V (Out) |
| [7] | 6.21V | [21] | 5.12V (Out) |
| [8] | 6.21V | [22] | 2.0V |
| [9] | 3.53V (Enable) | [23] | 0.61V |
| [10] | 5.12V (Out USB2) | [24] | 0.34V |
| [11] | 5.12V (Out USB2) | [25] | 0V |
| [12] | 3.3V (USB2 Ctrl) | [26] | 0.46V |
| [13] | 3.3V (USB3 Ctrl) | [27] | 0.45V |
| [14] | 3.29V (OCP2) | [28] | Gnd |

IC2302
(+18V Regulator)

| Pin | Voltage | Pin | Voltage |
|------|------------------|------|------------------|
| [1] | 3.51V (Enable) | [11] | 2.59V |
| [2] | n/c | [12] | 0.11V |
| [3] | 25.07V (+24V In) | [13] | (PGnd) |
| [4] | 1.68V | [14] | 1.82V (Drive) |
| [5] | 3.33V | [15] | 8.03V |
| [6] | 3.34V | [16] | 18.66V (Out) |
| [7] | 0.60V | [17] | 23.54V (Drive) |
| [8] | 2.23V | [18] | 25.59V |
| [9] | Gnd | [19] | 25.07V (+24V In) |
| [10] | 3.35V | [20] | 3.35V |

IC2303
+1.5V_DDR Regulator

| Pin | Voltage | Pin | Voltage |
|-----|----------------|------|----------------|
| [1] | 3.49V (Vcc In) | [9] | 2.22V |
| [2] | 3.49V (Vcc In) | [10] | 1.55V (Out) |
| [3] | Gnd | [11] | 1.55V (Out) |
| [4] | Gnd | [12] | 1.55V (Out) |
| [5] | Gnd | [13] | 5.04V |
| [6] | 0.80V | [14] | n/c |
| [7] | 0.36V | [15] | 3.47V |
| [8] | 0.0V | [16] | 3.49V (Vcc In) |

IC3000
Micro Processor

| Pin | Voltage | Pin | Voltage |
|------|---------|------|---------|
| [1] | 3.23V | [25] | 0V |
| [2] | 3.23V | [26] | 3.51V |
| [3] | 2.69V | [27] | 3.51V |
| [4] | 2.09V | [28] | 0.03V |
| [5] | 3.46V | [29] | 0.1V |
| [6] | 3.5V | [30] | 0V |
| [7] | 3.49V | [31] | 3.34V |
| [8] | 3.51V | [32] | 3.51V |
| [9] | 0V | [33] | 3.51V |
| [10] | 3.51V | [34] | 3.75V |
| [11] | 3.51V | [35] | 0V |
| [12] | 0V | [36] | 0V |
| [13] | 3.51V | [37] | 0.02V |
| [14] | 3.72V | [38] | 0V |
| [15] | 3.53V | [39] | 3.51V |
| [16] | 0V | [40] | 3.51V |
| [17] | 3.51V | [41] | 0.65V |
| [18] | 3.51V | [42] | 0.13V |
| [19] | 3.29V | [43] | 0V |
| [20] | 3.09V | [44] | 0.14V |
| [21] | 3.06V | [45] | 0V |
| [22] | 0V | [46] | 2.09V |
| [23] | 0V | [47] | Gnd |
| [24] | 0.1V | [48] | 3.51V |

IC5200
Ethernet IC

| Pin | Voltage | Pin | Voltage |
|------|------------|------|------------|
| [1] | 0V | [17] | 0V |
| [2] | 1.1V | [18] | n/c |
| [3] | 1.1V | [19] | n/c |
| [4] | 1.1V | [20] | 0V |
| [5] | 1.1V | [21] | 3.26V |
| [6] | 1.1V | [22] | 1.23V |
| [7] | 3.51V (In) | [23] | 3.25V |
| [8] | 0.03V | [24] | 3.25V |
| [9] | 0V | [25] | 3.24V |
| [10] | 0V | [26] | 0V |
| [11] | 0V | [27] | 0V |
| [12] | 0V | [28] | 0V |
| [13] | n/c | [29] | 1.08V |
| [14] | 3.51V (In) | [30] | 3.51V (In) |
| [15] | 1.32V | [31] | 0V |
| [16] | 0V | [32] | 0.58V |

IC5600
Audio Amp

| Pin | Voltage | Pin | Voltage |
|---------|----------------|---------|----------------|
| [1] | n/c | [21] | 2.16V (Out R+) |
| [2] | 1.24V | [22] | Gnd |
| [3] | n/c | [23] | 4.71V |
| [4] | Gnd | [24] | 5.12V |
| [5] | n/c | [25] | 5.14V |
| [6] | 1.26V | [26] | n/c |
| [7] | 0V | [27] | 5.11V |
| [8] | 1.62V | [28] | 4.72V |
| [9] | n/c | [29] | Gnd |
| [10] | 2.62V | [30] | 2.16V (Out L-) |
| [11] | 2.43V | [31-32] | 18.67V (L B+) |
| [12] | 3.30V (Mute) | [33] | 2.16V (Out L+) |
| [13] | n/c | [34] | Gnd |
| [14] | 0.0V | [35] | 4.71V |
| [15] | n/c | [36] | 3.03V (Reset) |
| [16] | 4.71V | [37] | Gnd |
| [17] | Gnd | [38] | 1.61V |
| [18] | 2.16V (Out R-) | [39] | Gnd |
| [19-20] | 18.67V (R B+) | [40] | 3.31V (In) |

IC5601
Tweeter Audio Amp

| Pin | Voltage | Pin | Voltage |
|---------|-------------------|---------|-------------------|
| [1] | n/c | [21] | 2.16V (Out R+_TW) |
| [2] | 1.24V | [22] | Gnd |
| [3] | n/c | [23] | 4.71V |
| [4] | Gnd | [24] | 5.12V |
| [5] | n/c | [25] | 5.14V |
| [6] | 1.26V | [26] | n/c |
| [7] | 0V | [27] | 5.11V |
| [8] | 1.62V | [28] | 4.72V |
| [9] | n/c | [29] | Gnd |
| [10] | 2.62V | [30] | 2.16V (Out L-_TW) |
| [11] | 2.43V | [31-32] | 18.67V (L B+) |
| [12] | 3.30V (Mute) | [33] | 2.16V (Out L+_TW) |
| [13] | n/c | [34] | Gnd |
| [14] | 0.0V | [35] | 4.71V |
| [15] | n/c | [36] | 3.03V (Reset) |
| [16] | 4.71V | [37] | Gnd |
| [17] | Gnd | [38] | 1.61V |
| [18] | 2.16V (Out R-_TW) | [39] | Gnd |
| [19-20] | 18.67V (R B+) | [40] | 3.31V (In) |

IC6100
Audio Amp

| Pin | Voltage | Pin | Voltage |
|-----|--------------|------|------------------------|
| [1] | Gnd | [8] | 1.66V |
| [2] | 0V (R In) | [9] | 3.31V (3.3V_Normal In) |
| [3] | 0V (R Out) | [10] | Gnd |
| [4] | Gnd | [11] | n/c |
| [5] | 3.49V (Mute) | [12] | 0V (L Out) |
| [6] | (-3.18V) | [13] | 0V (L In) |
| [7] | (-1.59V) | [14] | Gnd |

IC5900
Woofers Audio Amp

| Pin | Voltage | Pin | Voltage |
|---------|------------------|---------|-------------------|
| [1] | n/c | [21] | 2.16V (Out R+_WF) |
| [2] | 1.24V | [22] | Gnd |
| [3] | n/c | [23] | 4.71V |
| [4] | Gnd | [24] | 5.12V |
| [5] | n/c | [25] | 5.14V |
| [6] | 1.26V | [26] | n/c |
| [7] | 0V | [27] | 5.11V |
| [8] | 1.62V | [28] | 4.72V |
| [9] | n/c | [29] | Gnd |
| [10] | 2.62V | [30] | 2.16V (Out L-_WF) |
| [11] | 2.43V | [31-32] | 18.67V (L B+) |
| [12] | 3.30V (Mute) | [33] | 2.16V (Out L+_WF) |
| [13] | n/c | [34] | Gnd |
| [14] | 0.0V | [35] | 4.71V |
| [15] | n/c | [36] | 3.03V (Reset) |
| [16] | 4.71V | [37] | Gnd |
| [17] | Gnd | [38] | 1.61V |
| [18] | 2.16V (Out R-WF) | [39] | Gnd |
| [19-20] | 18.67V (R B+) | [40] | 3.31V (In) |

IC6601
RS232 Data

| Pin | Voltage | Pin | Voltage |
|-----|----------|------|--------------------|
| [1] | 3.52V | [9] | n/c |
| [2] | 5.39V | [10] | n/c |
| [3] | 0V | [11] | 3.09V |
| [4] | 0.02V | [12] | 3.52V |
| [5] | (-5.33V) | [13] | 0V |
| [6] | (-5.34V) | [14] | (-5.24V) |
| [7] | n/c | [15] | Gnd |
| [8] | n/c | [16] | 3.52V (3.5V_ST In) |

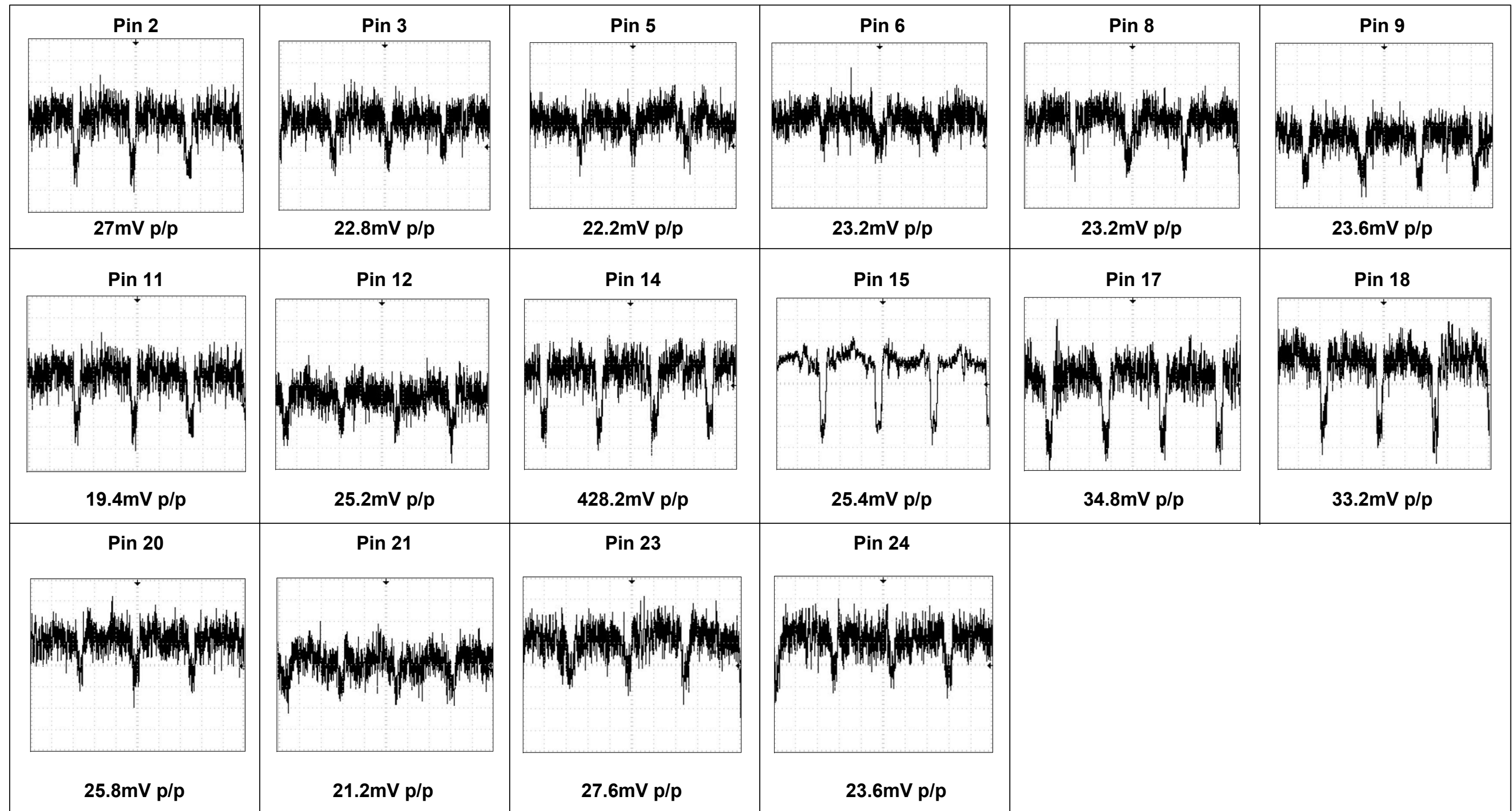
IC13402
VDDC Regulator

| Pin | Voltage | Pin | Voltage |
|------|----------------|------|-------------|
| [1] | 1.15V | [15] | 12.03V (In) |
| [2] | 4.99V | [16] | 12.03V (In) |
| [3] | 3.51V (Enable) | [17] | 12.03V (In) |
| [4] | 6.22V | [18] | 12.03V (In) |
| [5] | n/c | [19] | 12.03V (In) |
| [6] | 1.26V (Out) | [20] | 4.99V |
| [7] | 1.26V (Out) | [21] | 4.96V |
| [8] | 1.26V (Out) | [22] | Gnd |
| [9] | 1.26V (Out) | [23] | 0.61V |
| [10] | Gnd | [24] | 1.22V |
| [11] | Gnd | [25] | 0.37V |
| [12] | Gnd | [26] | Gnd |
| [13] | Gnd | [27] | Gnd |
| [14] | Gnd | [28] | Gnd |

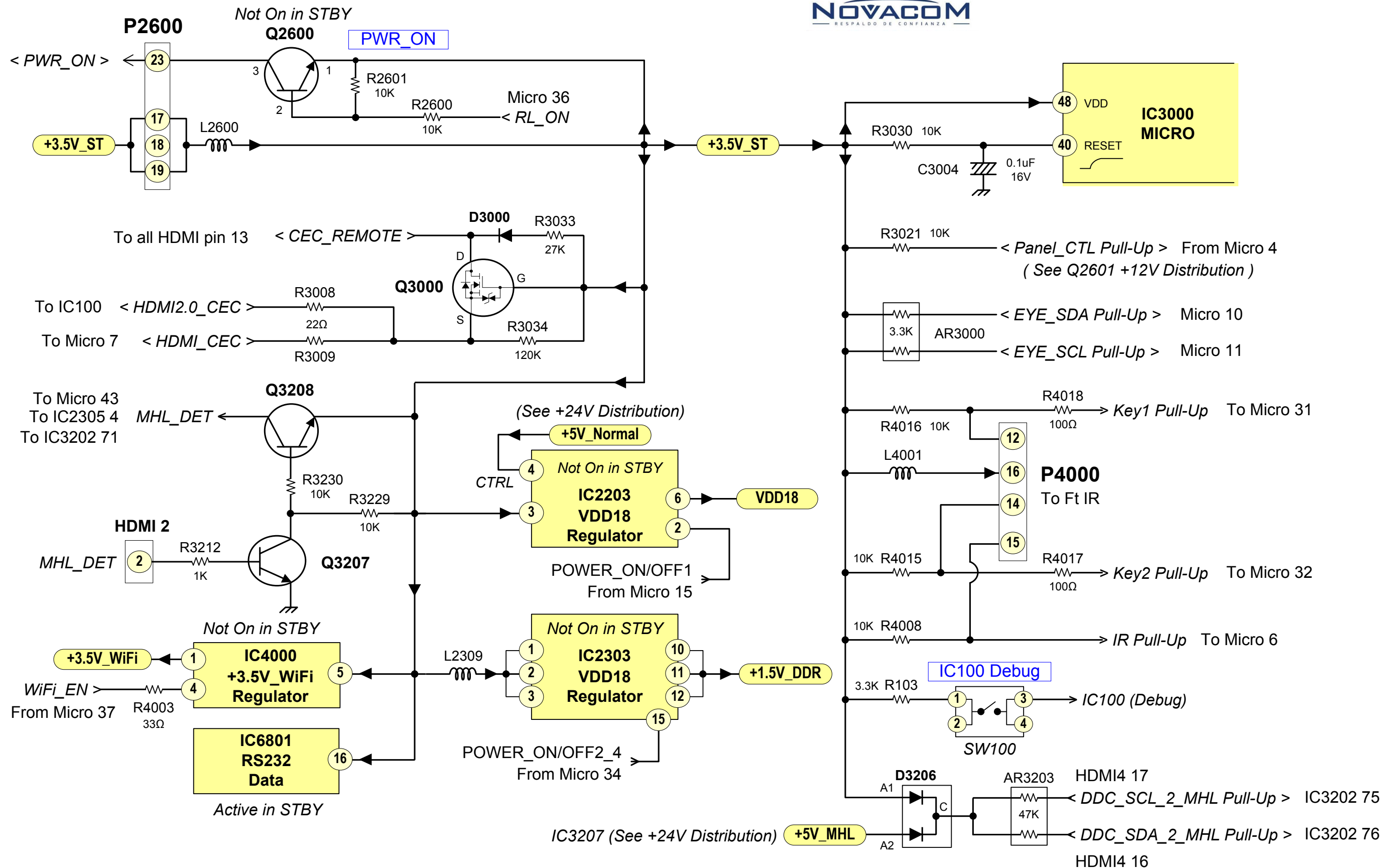


65UF9500 P13000 LVDS Connector Video Waveforms

All LVDS signals are taken with SMPTY Color Bar signal input (1080P) Component Input.
All LVDS signals are "Differential Pairs".
Scope Settings are 5mV per/division, 100uSec per/division.

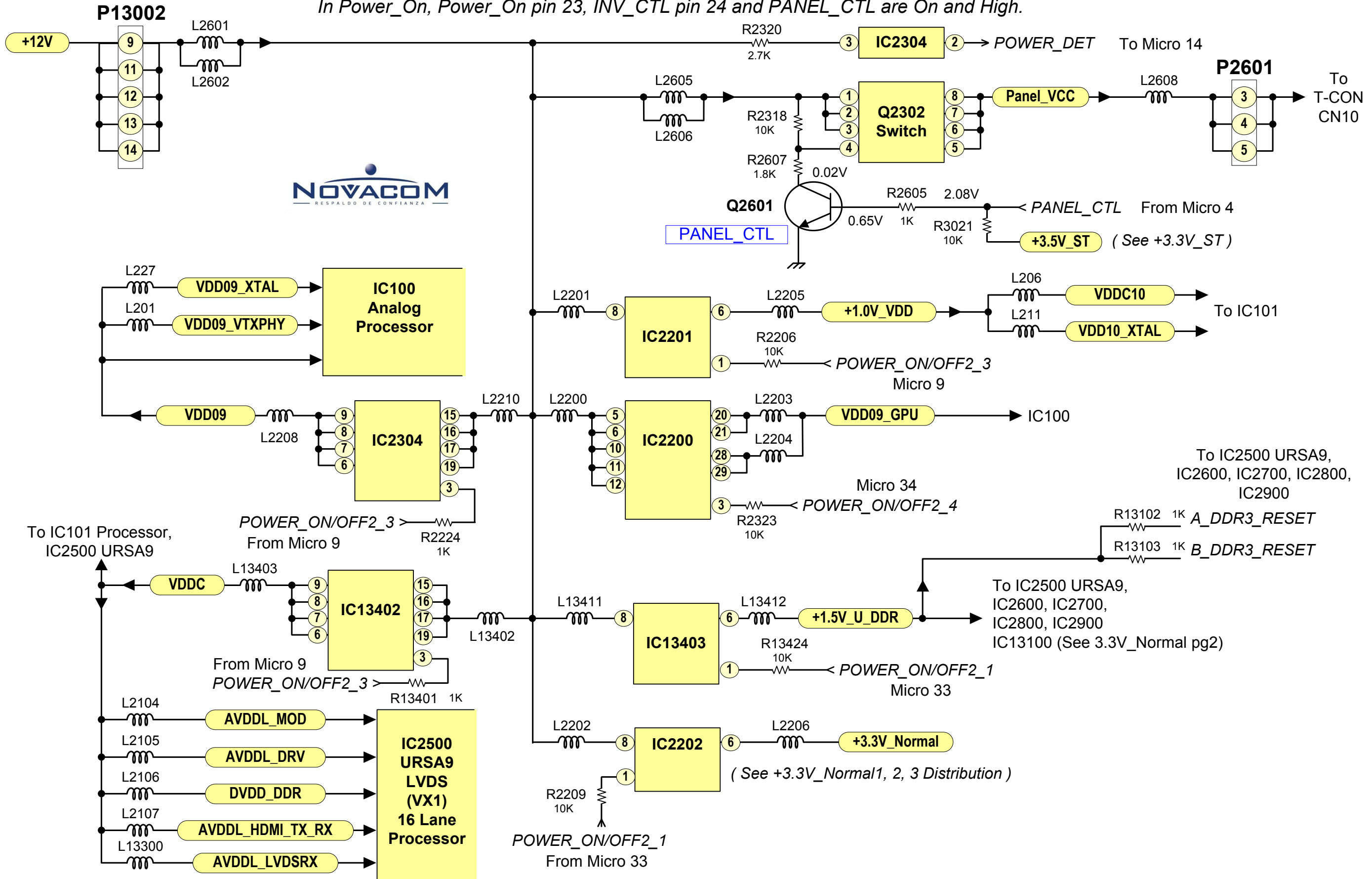


65UF9500 +3.5V_ST Voltage Distribution (In Stand-By)



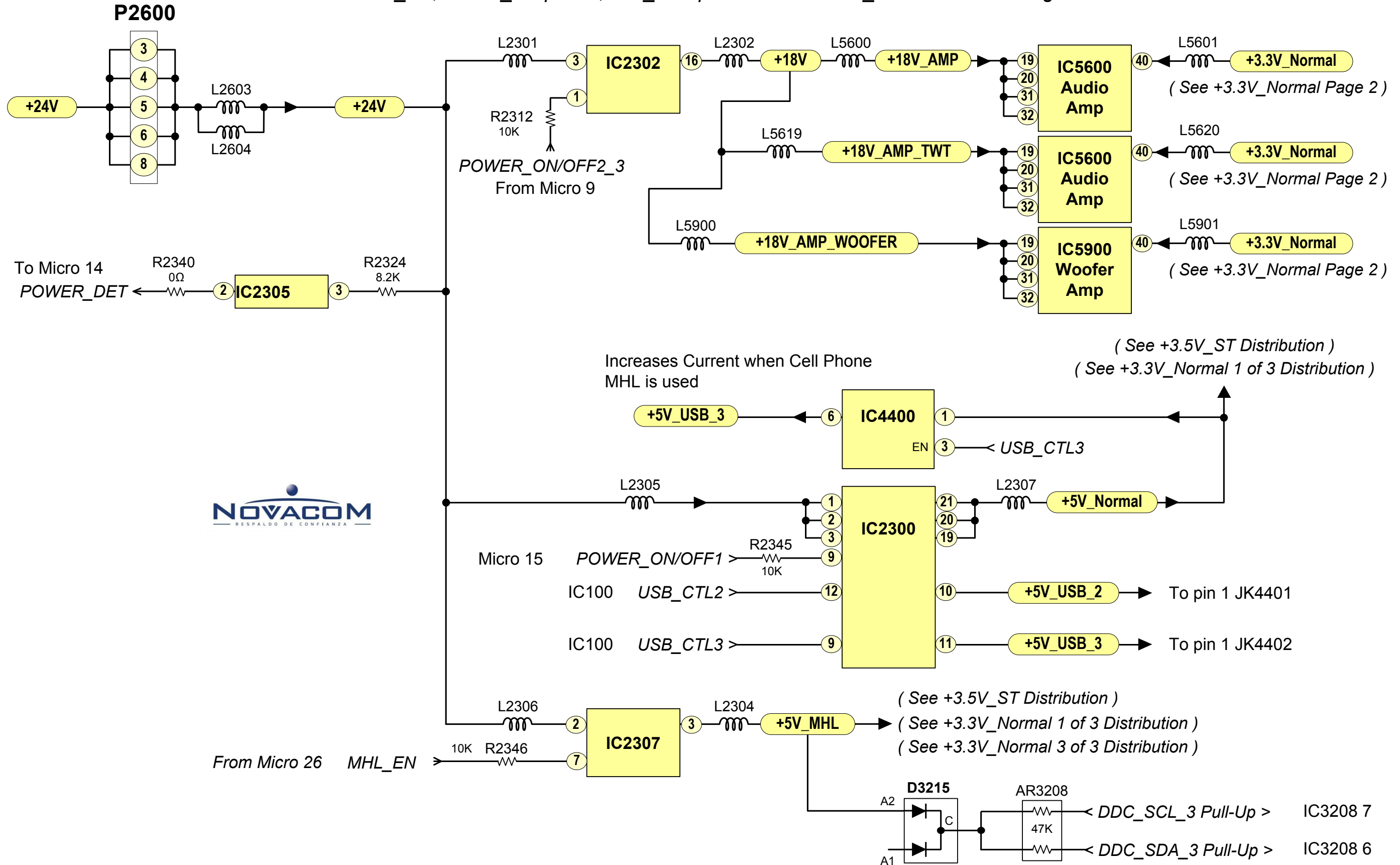
65UF9500 +12V Voltage Distribution (Power On)

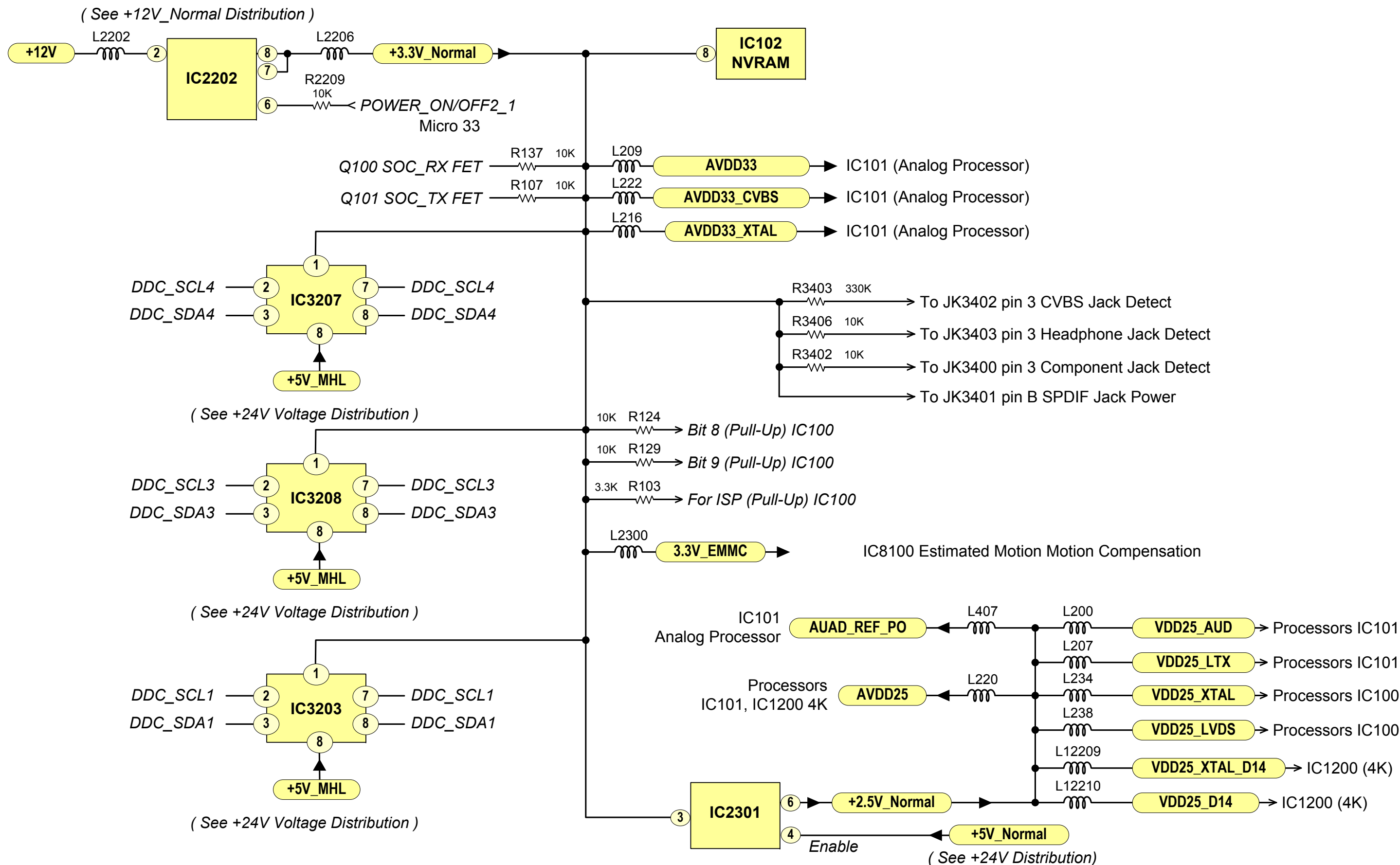
In Power_On, Power_On pin 23, INV_CTL pin 24 and PANEL_CTL are On and High.



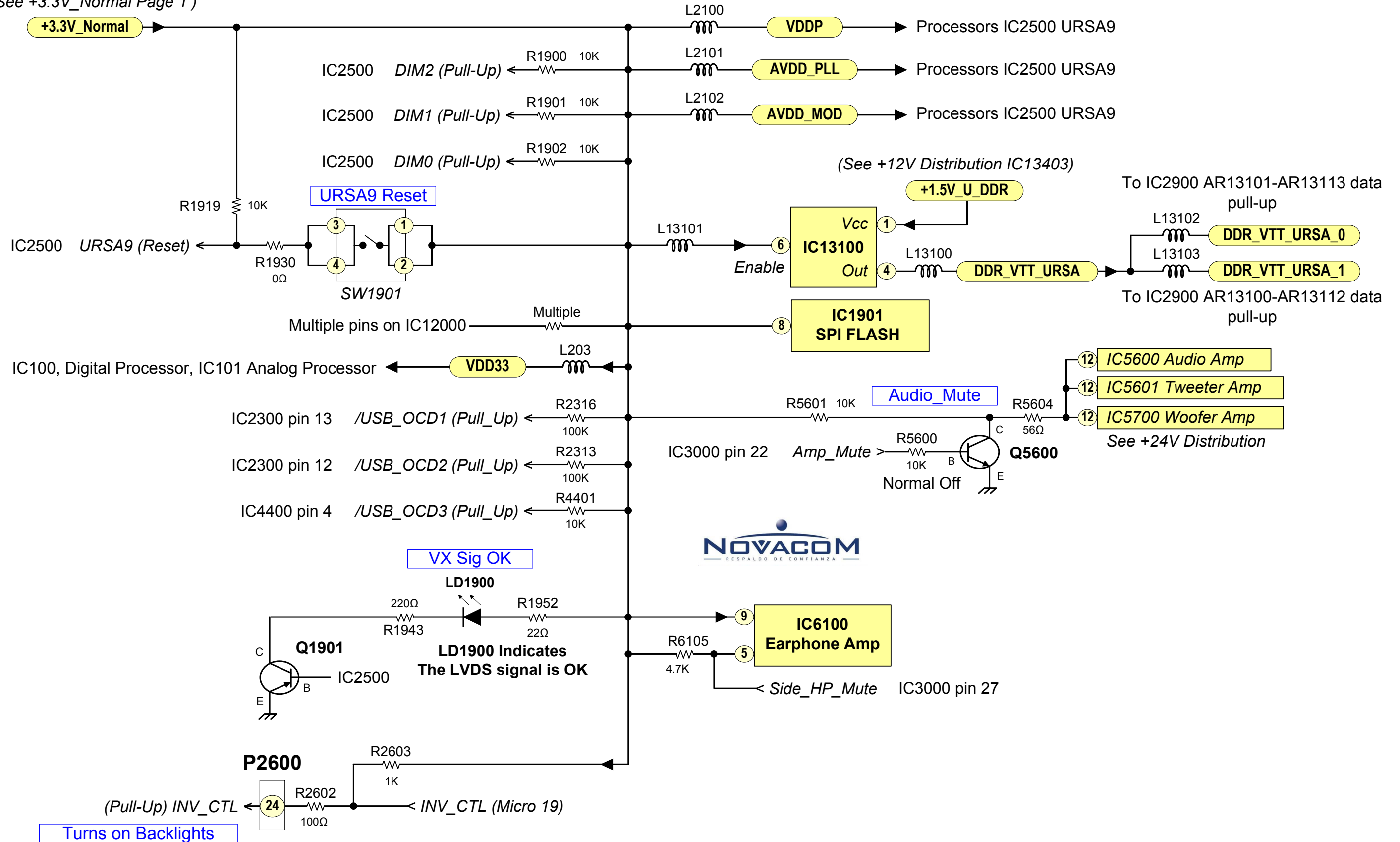
65UF9500 +24V Voltage Distribution (Power On)

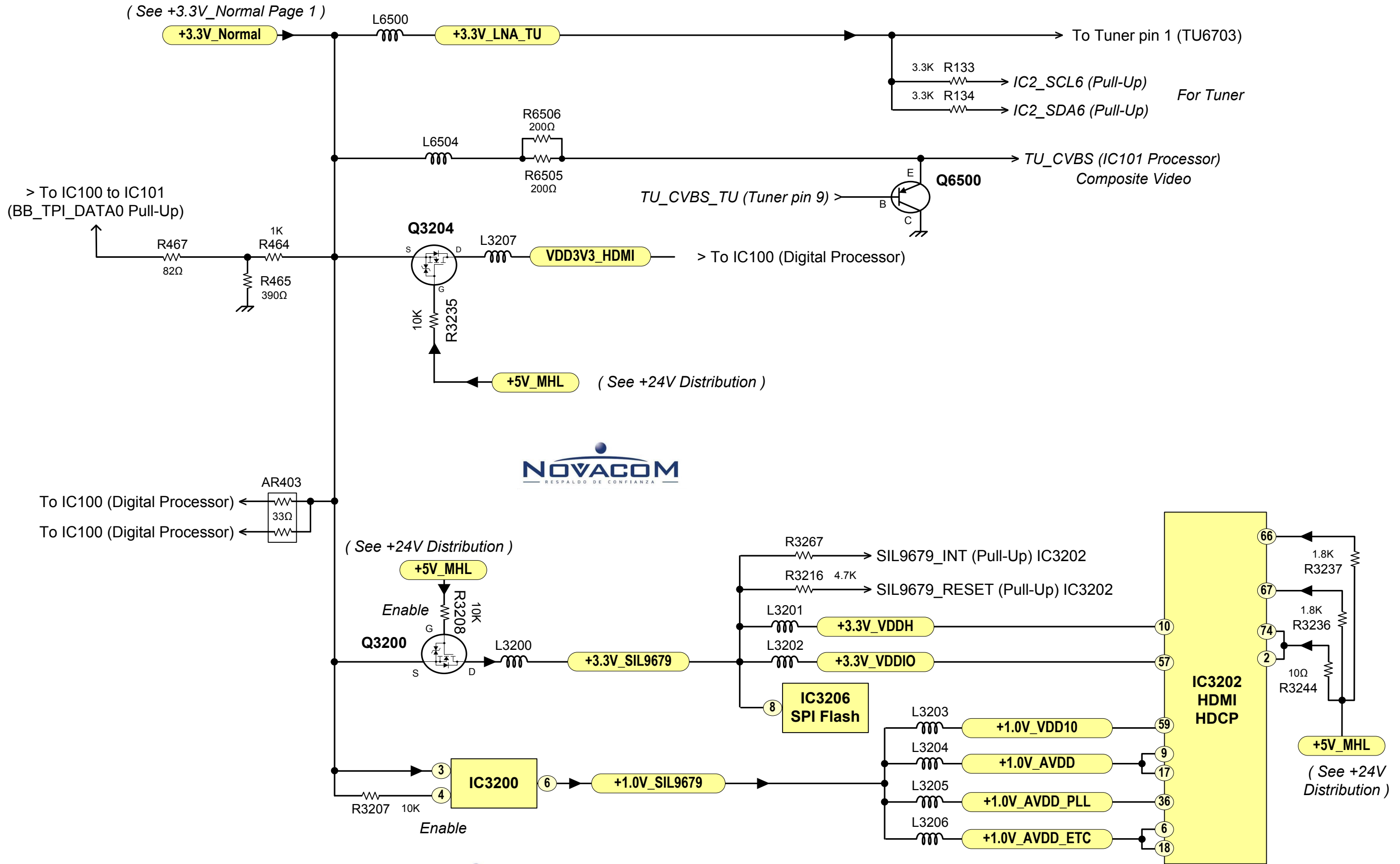
In Power_On, Power_On pin 23, INV_CTL pin 24 and PANEL_CTL are On and High.





(See +3.3V_Normal Page 1)






65UF9800 T-CON Component Voltages


OP1

| Pin | DC |
|-----|--------|
| 1 | 0V |
| 2 | 6.15V |
| 3 | 6.15V |
| 4 | Gnd |
| 5 | 0V |
| 6 | 4.7V |
| 7 | 16.32V |
| 8 | 0V |




U7

| Pin | DC |
|-----|-------|
| 1 | 3.31V |
| 2 | 3.31V |
| 3 | n/c |
| 4 | Gnd |
| 5 | 3.31V |
| 6 | 3.31V |
| 7 | 3.31V |
| 8 | 3.31V |



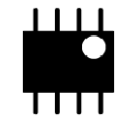
U10

| Pin | DC |
|-----|--------|
| 1 | 19.98V |
| 2 | 21.25V |
| 3 | 23.06V |



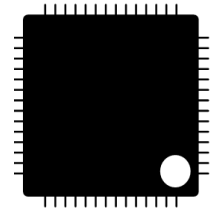
U11

| Pin | DC |
|-----|-------|
| 1 | 0V |
| 2 | 3.25V |
| 3 | 1.79V |
| 4 | 3.31V |
| 5 | 0V |
| 6 | 1.16V |
| 7 | 0.61V |
| 8 | Gnd |



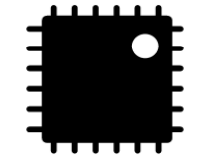
U2

| Pin | RUN |
|-----|----------|
| 1 | Gnd |
| 2 | Gnd |
| 3 | Gnd |
| 4 | Gnd |
| 5 | Gnd |
| 6 | n/c |
| 7 | (-5.08V) |
| 8 | 5.94V |
| 9 | 3.94V |
| 10 | 3.30V |
| 11 | 3.32V |
| 12 | 3.36V |
| 13 | Gnd |
| 14 | 11.83V |
| 15 | 11.83V |
| 16 | 7.85V |
| 17 | 7.83V |
| 18 | Gnd |
| 19 | 3.29V |
| 20 | 3.29V |
| 21 | 3.21V |
| 22 | 1.74V |
| 23 | Gnd |
| 24 | n/c |
| 25 | 16.15V |
| 26 | 16.12V |
| 27 | 0V |
| 28 | 4.07V |



UC1

| Pin | RUN |
|-----|--------|
| 1 | Gnd |
| 2 | 11.96V |
| 3 | 11.96V |
| 4 | Gnd |
| 5 | 4.91V |
| 6 | Gnd |
| 7 | 1.82V |
| 8 | 1.82V |
| 9 | 6.64V |
| 10 | Gnd |
| 11 | 11.97V |
| 12 | 11.97V |

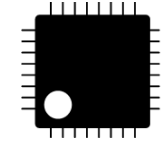


| Pin | RUN |
|-----|--------|
| 29 | 0.18V |
| 30 | 15.12V |
| 31 | 11.98V |
| 32 | 8.07V |
| 33 | 7.51V |
| 34 | 4.01V |
| 35 | 0.52V |
| 36 | 6.34V |
| 37 | 6.39V |
| 38 | 6.5V |
| 39 | 6.34V |
| 40 | Gnd |
| 41 | 16.07V |
| 42 | 28.06V |
| 43 | Gnd |
| 44 | Gnd |
| 45 | Gnd |
| 46 | Gnd |
| 47 | Gnd |
| 48 | Gnd |
| 49 | Gnd |
| 50 | Gnd |
| 51 | Gnd |
| 52 | Gnd |
| 53 | Gnd |
| 54 | Gnd |
| 55 | Gnd |
| 56 | Gnd |

| Pin | RUN |
|-----|--------|
| 13 | 11.97V |
| 14 | 0.81V |
| 15 | 5.15V |
| 16 | 5.14V |
| 17 | Gnd |
| 18 | 11.96V |
| 19 | 16.15V |
| 20 | Gnd |
| 21 | 1.11V |
| 22 | 1.26V |
| 23 | 9.08V |
| 24 | Gnd |

US1


| Pin | RUN |
|-----|----------|
| 1 | 27.35V |
| 2 | 28.04V |
| 3 | See Note |
| 4 | See Note |
| 5 | 4.93V |
| 6 | 4.93V |
| 7 | 4.93V |
| 8 | 4.94V |
| 9 | 4.93V |
| 10 | 4.92V |
| 11 | 4.93V |
| 12 | 4.92V |
| 13 | n/c |
| 14 | n/c |
| 15 | n/c |
| 16 | 1.22V |



Note: Cycles (-10.01V ~ 27.97V) Ever Second


DC1

| Pin | RUN |
|-----|-----------|
| 1 | 0.89V |
| 2 | Gnd |
| 3 | 3.3V |
| 4 | 3.3V |
| 5 | 3.3V |
| 6 | Gnd |
| 7 | Gnd |
| 8 | (-10.03V) |
| 9 | 0V |
| 10 | 1.22V |



DC2


| Pin | DC |
|-----|--------|
| 1 | 3.31V |
| 2 | 0.81V |
| 3 | 5.17V |
| 4 | 4.94V |
| 5 | 0.14V |
| 6 | 1.09V |
| 7 | 1.09V |
| 8 | 6.04V |
| 9 | 11.97V |
| 10 | 11.97V |



| Pin | RUN |
|-----|-----------|
| 17 | 27.32V |
| 18 | (-10.01V) |
| 19 | (-9.96V) |
| 20 | (-9.95V) |
| 21 | (-10.01V) |
| 22 | (-10.02V) |
| 23 | Gnd |
| 24 | 0V |
| 25 | 3.32V |
| 26 | 0.02V |
| 27 | 0.16V |
| 28 | 0.70V |
| 29 | 1.17V |
| 30 | 3.25V |
| 31 | 3.31V |
| 32 | Gnd |


D2

| Pin | DC |
|-----|-----------|
| C | Gnd |
| A | (-10.03V) |




D5

| Pin | RUN |
|-----|--------|
| 1 | 11.95V |
| 2 | 16.15V |
| 3 | 11.95V |




Q1

| Pin | RUN |
|-----|----------|
| 1 | 3.31V |
| 2 | 3.93V |
| 3 | 0.92V |
| 4 | (-5.09V) |
| 5 | 5.34V |
| 6 | 5.34V |



Q3

| Pin | RUN |
|-----|--------|
| 1 | 10.36V |
| 2 | 16.15V |
| 3 | 16.13V |




84UB9800 INTERCONNECT DIAGRAM

PANEL p/n: EAJ62573201

If the Panel is replaced, reset the UTT, Unit's Total Time. Press "In-Stop" using Service Remote.

CN201 "LED Driver Right" to "SMPS 1st" P2205
CN1201 "LED Driver Left" to "SMPS 1st" P2207

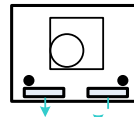
| PIN | LABEL | RUN | Diode ✓ |
|------|--------|---------------|---------|
| 1-5 | VIN | 23.66V-23.76V | OL |
| 6-10 | Gnd | Gnd | Gnd |
| 11 | Status | 0V | OL |
| 12 | ENA | 2.97V | OL |
| 13 | N/C | n/c | n/c |
| 14 | DRV_ON | 2.97V | OL |

CN101 "LED Driver Right" to SMPS 1st* P2204
CN1101 "LED Driver Left" to SMPS 1st* P2206

| PIN | LABEL | RUN | Diode ✓ |
|------|----------|---------------|---------|
| 1-5 | VIN | 23.66V-23.76V | OL |
| 6-10 | Gnd | Gnd | n.c. |
| 11 | Status | 0V | OL |
| 12 | ENA | 2.97V | OL |
| 13 | ADIM | 0V | OL |
| 14 | EXTUBR-B | 3.28V-0.17V | OL |

CN603 "LED Driver Right" to "T-CON" CN3
CN1603 "LED Driver Left" to "T-CON" CN1

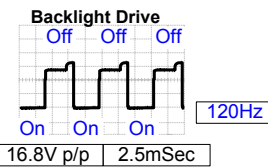
| PIN | LABEL | RUN | Diode ✓ |
|-----|-------|-------|---------|
| 1 | DCLK | 0.52V | OL |
| 2 | DIN | 0.82V | OL |
| 3 | Gnd | Gnd | n.c. |
| 4 | VSYNC | 0V | OL |



Camera

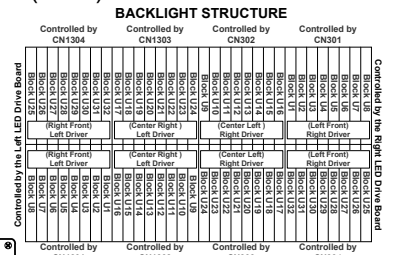
p/n: EBX61988502

Note: If a part of the picture is exhibiting a dimmer backlight level than the other or the overall brightness seems dim, be sure to first check the customer's Menu setting for Backlights. Raise the percentage and see if the overall brightness returns to normal. If not, Check the P-DIM level, it should rise with the percentage shown on screen.



LED ONE BLOCK TEST (DIM OR DARK PICTURE AREA):

Turn the Brightness, Contrast and Backlights all the way up. Confirm 49V B/L Power. Confirm P-DIM is approx. 3V. You can turn on a Block of LEDs by using a 100 ohm resistor from any test point U1 - U32 to Ground (On each Driver board). Failure to use a resistor will damage the panels backlight and may also damage the power supply.



448 Total LEDs
64 Blocks (Zones), 7 LEDs per Block.
6 on the left are controlled by P801
6 on the right are controlled by P802

CN301 "LED Driver Right" to "Panel" or CN1301 "LED Driver Left" to "Panel"

| PIN | LABEL |
|-----|---------|
| 1 | V_Left1 |
| 2 | N.C. |
| 3 | U8 |
| 4 | U7 |
| 5 | U6 |
| 6 | U5 |
| 7 | U4 |
| 8 | U3 |
| 9 | U2 |
| 10 | U1 |
| 11 | N.C. |
| 12 | V_Left1 |

CN303 "LED Driver Right" to "Panel" or CN1303 "LED Driver Left" to "Panel"

| PIN | LABEL |
|-----|---------|
| 1 | V_Left2 |
| 2 | N.C. |
| 3 | U24 |
| 4 | U23 |
| 5 | U22 |
| 6 | U21 |
| 7 | N.C. |
| 8 | U20 |
| 9 | U19 |
| 10 | U18 |
| 11 | U17 |
| 12 | N.C. |
| 13 | V_Left2 |

All Diode Readings "OL"

CN302 "LED Driver Right" to "Panel" or CN1302 "LED Driver Left" to "Panel"

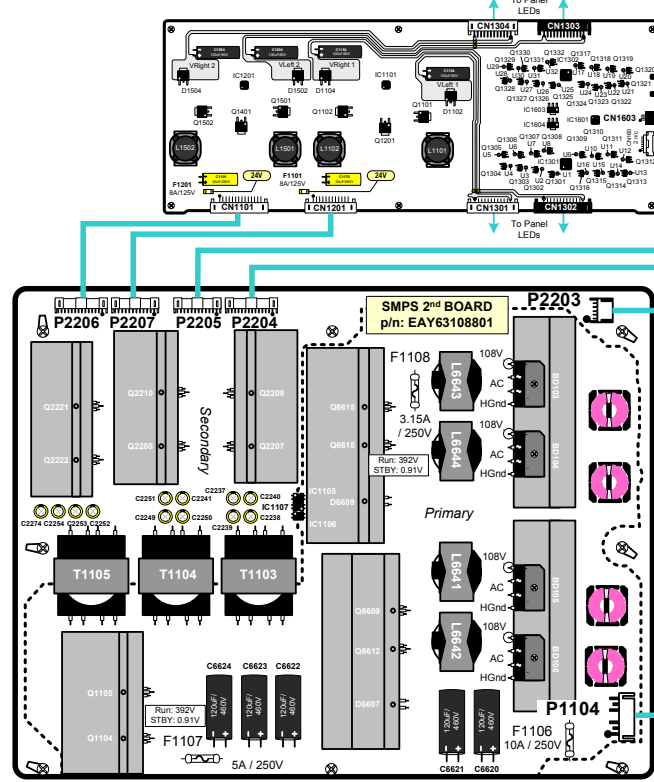
| PIN | LABEL |
|-----|----------|
| 1 | V_Right1 |
| 2 | N.C. |
| 3 | U16 |
| 4 | U15 |
| 5 | U14 |
| 6 | U13 |
| 7 | N.C. |
| 8 | U12 |
| 9 | U11 |
| 10 | U10 |
| 11 | U9 |
| 12 | N.C. |
| 13 | V_Left2 |

CN304 "LED Driver Right" to "Panel" or CN1304 "LED Driver Left" to "Panel"

| PIN | LABEL |
|-----|----------|
| 1 | V_Right2 |
| 2 | N.C. |
| 3 | U32 |
| 4 | U31 |
| 5 | U30 |
| 6 | U29 |
| 7 | U28 |
| 8 | U27 |
| 9 | U26 |
| 10 | U25 |
| 11 | N.C. |
| 12 | V_Left1 |

All Diode Readings "OL"

Readings Bright to Dark (100% to 0% P-DIM)
V_Right 1, 2 and V_Left 1, 2: (44.31V-48.48V)
U1-U32: (17.13V~2.09V)

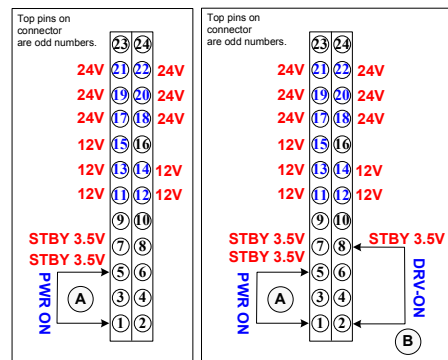


PWR_ON Pin 1: Turns on 12V and 24V. (Also see Note 1)
DRV_ON Pin 2: Turns on Backlights. DRV_ON is INV_CTL from Main. (Also see Note 2)
P-DIM Pin 3: Controls Backlights via customer's menu Backlights (0% to 100%).
A-DIM Pin 4: Fixed Voltage.

Note 1: Backlight power is 23.65V with PWR_ON arrives on SMPS 2nd, (The Backlights will not be on at this time).
Note 2: Backlight Power goes to 49V when DRV_ON arrives on SMPS 2nd, (The Backlights will now come On).

POWER SUPPLY TEST

This test will confirm that Both Power Supplies and both Backlight Drivers are functioning. Also, the Panel and T-CON can be tested in SMPS Test 2 condition, See "Panel Test" procedure.



WARNING: Do not add or remove jumpers with Power Applied.

SMPS TEST 1: To Force Power Supply On without the Main Board. Disconnect the P13002 on the Main board. (A) Jump pin 5 (3.5V) to pin 1. Test Voltage Outputs 12V, 24V to Main. (23.65V Backlight power but the Backlights are not on at this time). LED Ground Return Line is (0.05V). Remove AC power. Leave the jumper in place.

SMPS TEST 2: (Turning on the Backlights) (B) Jump pin 8 (3.5V) to pin 2 (DRV-ON). Apply AC power, the Backlights should turn on. Note, the LED B+ will now read to 44.78V. LED Ground Return Line is (0.62-1.44V). P-DIM P201 (pin 4) reads 3.30V.

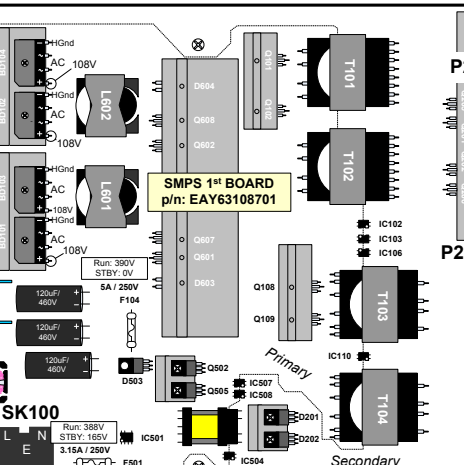
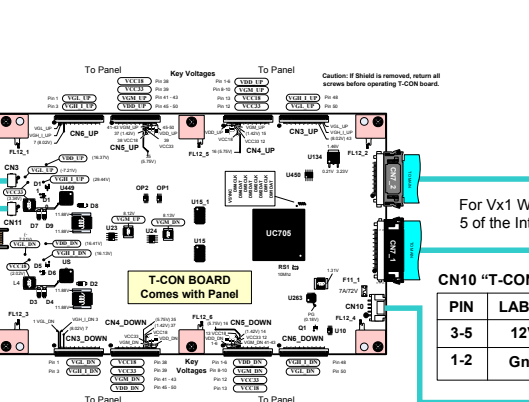
Diode Check All Boards Connected

| | Blk on Gnd | Red on Gnd |
|-------|------------|------------|
| 3.5V: | 1.10V | 0.18V |
| 12V: | 0.88V | 0.42V |
| 24V: | 0.87V | 0.43V |

M-Remote

p/n: EBR76363003

PANEL TEST: To run the Panel Test (Testing the T-CON and Panel without the Main board), simply unplug CN7_1 and CN7_2. Set SMPS 1st into Test 2 condition. (If necessary, unplug CN10 and jump 12V to the fuse F11_1). Apply power to the set. (Backlights and Power Supply should be working OK). T-CON outputs color patterns on the screen. This test confirms the T-CON, Power Supply, Panel and Backlights are working normally.



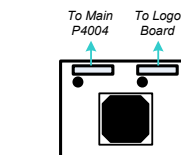
P201 "SMPS Board" to P13002 "MAIN Board"

| PIN | LABEL | STBY | RUN | Diode ✓ |
|-------|------------|-------|-------------|---------|
| 23-24 | Gnd | Gnd | Gnd | Gnd |
| 18-22 | 24V | 0V | 24.02V | 0.96V |
| 16-17 | Gnd | Gnd | Gnd | Gnd |
| 11-15 | 12V | 0V | 12.02V | 1.34V |
| 9-10 | Gnd | Gnd | Gnd | Gnd |
| 7-8 | 3.5V | 3.45V | 3.44V | OL |
| 6 | Gnd | Gnd | Gnd | Gnd |
| 5 | 3.5V | 3.45V | 3.44V | OL |
| 4 | (4) A-DIM | 0V | 0.93V | OL |
| 3 | (3) P-DIM | 0V | 3.28V-0.17V | OL |
| 2 | (2) DRV_ON | 0V | 3.28V | OL |
| 1 | (1) PWR_ON | 0V | 3.39V | OL |

(3) Bright to Dim

WiFi

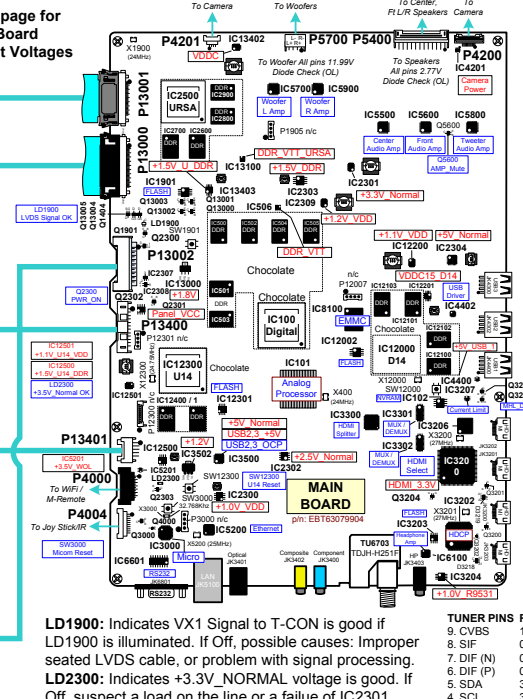
To Main P4000
p/n: EAT62093401



Front IR/Joy Stick

p/n: EBR78101201

See next page for Main Board Component Voltages



CN10 "T-CON" to P13401 "Main"

| PIN | LABEL | RUN | Diode ✓ |
|-----|-------|--------|---------|
| 3-5 | 12V | 11.88V | OL |
| 1-2 | Gnd | Gnd | Gnd |

KEY VOLTAGES P4004 "MAIN" to "Joy Stick, IR"

| PIN | LABEL | STBY | RUN | Diode Check |
|-----|----------|-------|-------|-------------|
| 2 | Key 1 | 3.44V | 3.43V | 1.94V |
| 3 | Key 2 | 3.44V | 3.43V | 1.94V |
| 4 | +3.5V_ST | 3.45V | 3.42V | 1.21V |
| 7 | IR | 3.40V | 3.39V | 1.85V |

IR peak/peak 3.80V

P4000 "Main" to "M-Remote & WiFi Board"

| Pin | Label | STBY | Run | Diode ✓ |
|-----|---------------|------|-------|---------|
| 1 | Gnd | Gnd | Gnd | Gnd |
| 2 | 3.5V_WOL | 0V | 3.42V | 1.17V |
| 3 | WOL (WiFi On) | 0V | 3.40V | 1.93V |
| 4 | WiFi_DM | 0V | 0V | 1.19V |
| 5 | Gnd | Gnd | Gnd | Gnd |
| 6 | WiFi_DP | 0V | 0V | 1.24V |
| 7 | N/C | n/c | n/c | n/c |
| 8 | 3.5V_Normal | 0V | 3.33V | 0.45V |
| 9 | Gnd | Gnd | Gnd | Gnd |
| 10 | Remote_RTS | 0V | 0.01V | OL |
| 11 | Remote_CTS | 0V | 0.01V | OL |
| 12 | Remote_RX | 0V | 3.33V | OL |
| 13 | Reset | 0V | 3.33V | OL |
| 14 | Remote_TX | 0V | 3.33V | OL |

P4200 "Main" to "Camera" (Note Camera Up Position)

| Pin | Label | STBY | Run | Diode ✓ |
|-----|-----------------|------|-------|---------|
| 1 | Cam_Slide_Det | 0V | 3.31V | OL |
| 2 | Cam_Trigger_Det | 0V | 0.80V | OL |
| 3 | Gnd | Gnd | Gnd | Gnd |
| 4 | Camera_DM | 0V | 0V | 1.30V |
| 5 | Camera_DP | 0V | 0V | 1.30V |
| 6 | Gnd | Gnd | Gnd | Gnd |
| 7 | I2C_Woofler | 0V | 1.60V | 1.24V |
| 8 | AUD_SCK | 0V | 1.61V | 1.24V |
| 9 | AUD_LRCK | 0V | 1.61V | 1.24V |
| 10 | I2C_AMP | 0V | 1.28V | OL |
| 11 | Gnd | Gnd | Gnd | Gnd |
| 12 | +3.5V_CAM | 0V | 3.41V | 1.98V |
| 13 | +3.5V_CAM | 0V | 3.41V | 1.98V |
| 14 | Cam_PWR_On | 0V | 0.01V | 1.98V |
| 15 | Cam_Reset | 0V | 3.41V | 1.98V |
| 16 | Cam_Sleep | 0V | 0.01V | 1.98V |




































P4201 "Main" to "Camera"

| PIN | LABEL | STBY | RUN | Diode Check |
|-----|-----------|------|-------|-------------|
| 1 | Gnd | Gnd | Gnd | Gnd |
| 2 | +3.5V_CAM | 0V | 3.41V | 1.98V |
| 3 | +3.5V_CAM | 0V | 3.41V | 1.98V |
| 4 | Gnd | Gnd | Gnd | Gnd |

P5700 "Main" to "Woofler"

| Pin | Label | SBY | Run | Diode Check |
|-----|---------------|-----|--------|-------------|
| 1 | SPK_WOOFER_R- | 0V | 11.99V | OL |
| 2 | SPK_WOOFER_R+ | 0V | 11.99V | OL |
| 3 | SPK_WOOFER_L- | 0V | 11.99V | OL |
| 4 | SPK_WOOFER_L+ | 0V | 11.99V | OL |


Woofler is 8 ohm

| | | | | | |
|--|--|--|--|--|---|
| IC102  NVRAM Memory Pin [1] Gnd [2] Gnd [3] Gnd [4] Gnd [5] 3.26V [6] 3.27V [7] Gnd [8] 3.28V | IC2303  +1.5V_DDR Regulator Pin [1] 3.47V (Enable) [2] 3.77V [3] 5.22V [4] 2.45V [5] Gnd [6] 1.57V (Out) [7] 6.5V [8] 12V (+11.61V In) | IC3502  +1.2V Regulator Pin [Gnd] 0V (Gnd) [Out] 1.2V (Out) [In] 3.31V (In) | IC12301  SPI FLASH Memory Pin [1] 3.31V [2] 0.17V [3] 3.31V [4] Gnd [5] 0.31V [6] 0V [7] 3.31V [8] 3.31V (In) | Q1901  Drives LD1900 Pin [E] 1.18V [B] 0.56V [C] Gnd | Q3205  MHL Det Pin [B] 0V [C] 3.52V (Out) [E] 0V |
| IC506  DDR_VTT Regulator Pin [1] 0.73V [2] 1.5V [3] 0.74V VTT (In) [4] Gnd [5] 0.74V [6] 0.74V [7] 3.33V (Enable) [8] Gnd [9] n/c [10] 3.33V VTT (Out) | IC2307  PWR_Det 12V Sense Pin [1] Gnd [2] 3.54V (Reset) [3] 3.57V (In) | IC4201  +3.5V_CAM Regulator Pin [1] 3.41V (Out) [2] Gnd [3] n/c [4] 3.43V (EN) [5] 3.43V (+3.5V_ST) | IC12500  +1.5V_U14_DDR Regulator Pin [1] 3.50V (Enable) [2] 0.77V [3] 5.67V [4] 2.54V [5] Gnd [6] 1.53V (Out) [7] 6.48V [8] 11.70V (In) | Q2300  PWR_On Switch Pin [1] 3.52V [2] 2.84V [3] 3.41V | Q3206  MHL Det Pin [B] 3.52V [C] 0V (Out) [E] 3.52V |
| IC1901  SPI FLASH Memory Pin [1] 3.27V [2] 3.25V [3] 0V [4] Gnd [5] 3.27V [6] 0V [7] 3.27V [8] 3.27V (In) | IC2308  PWR_Det 20V Sense (Not Used) Pin [1] Gnd [2] 0V (Reset) [3] 0V (In) | IC4400  +5V_USB_1 Regulator Pin [1] 5.09V (In) [2] Gnd [3] 3.27V (Enable) [4] 2.96V (USB_OCD1) [5] 0.41V [6] 5.09V (Out) | IC13000  +1.8V Regulator Pin [Gnd] 0.55V (Adj) [Out] 1.8V (Out) [In] 3.31V (In) | Q2301  Panel_VCC CTRL Drives Q2302 Pin [B] 0.61V [C] 0.03V [E] Gnd | Q4000  LOGO_Light Driver Pin [B] 0V (En) [C] 1.27V (Out) [E] Gnd |
| IC2300  +1.0V_VDD Regulator Pin [1] 3.44V (Enable) [2] 0.77V [3] 3.45V [4] 5.42V [5] Gnd [6] 1.02V (Out) [7] 6.41V [8] 12V (In) | IC3203  FLASH Memory Pin [1] 0V [2] 0V [3] 0V [4] Gnd [5] 0V [6] 0V [7] 3.28V [8] 3.31V (In) | IC5201  +3.5V_WOL Regulator Pin [1] 3.52V (Out) [2] Gnd [3] 0.01V n/c [4] 3.51V (OCP Out) [5] 3.51V (Vcc In) | IC13100  DDR_VTT_URSA Regulator Pin [1] 0.73V [2] 1.53V [3] 0.76V VTT (In) [4] Gnd [5] 0.76V [6] 0.76V [7] 3.28V (Enable) [8] Gnd [9] n/c [10] 3.28V VTT (Out) | Q2302  Panel_VCC Switch Pin [1] 11.69V (In) [2] 11.69V (In) [3] 11.69V (In) [4] 1.81V (Enable) [5] 11.69V (Out) [6] 11.69V (Out) [7] 11.69V (Out) [8] 11.69V (Out) | Q5600  Amp Mute Driver Pin [B] 0V [C] 3.27V [E] Gnd |
| IC2302  (+2.5V_NORMAL) Regulator Pin [1] 3.35V (in) [2] n/c [3] 5.12V (in) [4] 3.53V (ctrl) [5] Gnd [6] 4.92V [7] 0.81V [8] 2.56V (out) | IC3204  +1.0V_R9531 Regulator Pin [1] n/c [2] 3.23V [3] 3.31V (In) [4] 5.09V (Enable) [5] n/c [6] 1.0V (Out) [7] 0.6V [8] Gnd | IC12002  FLASH Memory Pin [1] 3.28V [2] 0V [3] 2.46V [4] Gnd [5] 0.11V [6] 0V [7] 3.28V [8] 3.31V (In) | IC13403  +1.5V_U_DDR Regulator Pin [1] 3.50V (Enable) [2] 0.77V [3] 5.21V [4] 2.50V [5] Gnd [6] 1.55V (Out) [7] 6.54V [8] 11.70V (In) | Q2303  Drives LD2300 Pin [E] Gnd [B] 0.64V [C] 0.02V | Q13000  Drives Q13002 Pin [E] Gnd [B] 0.25V [C] 1.61V |
| IC3207  +5V_HDMI_4 Regulator Pin [1] 3.09V (In) [2] Gnd [3] 0V (Enable) [4] 0V (MHL_OCP) [5] 0V [6] 0.0V (Out) | IC12201  VDDC15_D14 Regulator Pin [1] 3.47V (Enable) [2] 0.77V [3] 5.27V [4] 2.51V [5] Gnd [6] 1.53V (Out) [7] 6.40V [8] 11.57V (In) | Q1404  LockA_N Switch Pin [G] 1.80V [S] 0.56V [D] 0.56V | Q3200 / 01  HDMI3 Hot Swap Pin [B] 0V [C] 0V [E] Gnd | Q13001  Drives Q13003 Pin [E] Gnd [B] 0.25V [C] 1.59V | |
| | | | | Q3000  HDMI_3.3V Switch Pin [G] 3.42V (+3.5V_ST) [S] 3.39V (HDMI_CEC) [D] 3.35V (CEC_REMOTE) | Q13002  Activates Vx1_LOCKn_0 Pin [E] Gnd [B] 0.64V [C] 0.09V |
| | | | | Q3202  Reset_N Switch for IC3202 Pin [B] 3.28V [C] 3.46V [E] 3.28V | Q13003  Activates Vx1_LOCKn_V Pin [E] Gnd [B] 0.64V [C] 0.02V |
| | | | | Q3204  HDMI_3.3V Switch Pin [G] 5.09V (In) [S] 3.28V (Enable) [D] 3.29V (Out) | Q13004  I2C_SCL1 Switch Pin [G] 3.24V [S] 3.31V [D] 3.29V |
| | | | | | Q13005  I2C_SDA1 Switch Pin [G] 3.29V [S] 3.32V [D] 3.29V |




IC2301
+3.3V_Normal Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.17V | [15] 11.65V (In) |
| [2] 5.13V | [16] 11.65V (In) |
| [3] 3.53V (Enable) | [17] 11.65V (In) |
| [4] 8.42V | [18] n/c |
| [5] n/c | [19] 11.65V (In) |
| [6] 3.36V (Out) | [20] 5.14V |
| [7] 3.36V (Out) | [21] 5.12V |
| [8] 3.36V (Out) | [22] Gnd |
| [9] 3.36V (Out) | [23] 0.62V |
| [10] Gnd | [24] 3.35V |
| [11] Gnd | [25] 0.43V |
| [12] Gnd | [26] n/c |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |



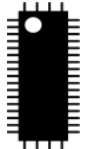
IC2309
+1.2V_VDD Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.18V | [15] 11.59V (In) |
| [2] 5.18V | [16] 11.59V (In) |
| [3] 3.51V (Enable) | [17] 11.59V (In) |
| [4] 6.44V | [18] n/c |
| [5] n/c | [19] 11.59V (In) |
| [6] 1.29V (Out) | [20] 5.18V |
| [7] 1.29V (Out) | [21] 5.18V |
| [8] 1.29V (Out) | [22] Gnd |
| [9] 1.29V (Out) | [23] 0.61V |
| [10] Gnd | [24] 1.26V |
| [11] Gnd | [25] 0.41V |
| [12] Gnd | [26] Gnd |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |




IC3301 / IC3302
MUX/ DEMUX

| Pin | Pin |
|----------------|------------|
| [1] 3.31V (In) | [22] 2.94V |
| [2] 3.28V | [23] 2.94V |
| [3] 4.88V | [24] 2.94V |
| [4] 4.88V | [25] 2.94V |
| [5] 2.98V | [26] 2.94V |
| [6] 2.98V | [27] 2.94V |
| [7] 2.98V | [28] 2.94V |
| [8] 2.98V | [29] 2.94V |
| [9] n/c | [30] n/c |
| [10] 2.98V | [31] 2.94V |
| [11] 2.98V | [32] 2.94V |
| [12] 2.98V | [33] 2.94V |
| [13] 2.98V | [34] 2.94V |
| [14] n/c | [35] 2.94V |
| [15] n/c | [36] 2.94V |
| [16] 3.28V | [37] 2.94V |
| [17] 3.28V | [38] 2.94V |
| [18] n/c | [39] 4.88V |
| [19] n/c | [40] 4.88V |
| [20] n/c | [41] 3.28V |
| [21] n/c | [42] 3.28V |




IC12200
+1.1V_VDD Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.17V | [15] 11.62V (In) |
| [2] 5.13V | [16] 11.62V (In) |
| [3] 3.51V (Enable) | [17] 11.62V (In) |
| [4] 6.27V | [18] n/c |
| [5] n/c | [19] 11.62V (In) |
| [6] 1.2V (Out) | [20] 5.13V |
| [7] 1.2V (Out) | [21] 5.13V |
| [8] 1.2V (Out) | [22] Gnd |
| [9] 1.2V (Out) | [23] 0.6V |
| [10] Gnd | [24] 1.19V |
| [11] Gnd | [25] 0.39V |
| [12] Gnd | [26] n/c |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |




IC2304
+5V_Normal Regulator

| Pin | Pin |
|------------------------|-------------------|
| [1] 24.68V (In) | [15] 5.04V (OCP2) |
| [2] 24.68V (In) | [16] 5.09V |
| [3] 24.68V (In) | [17] 5.09V |
| [4] Gnd | [18] 12.04V |
| [5] Gnd | [19] 5.09V (Out) |
| [6] Gnd | [20] 5.09V (Out) |
| [7] 6.25V | [21] 5.09V (Out) |
| [8] 6.25V | [22] 1.94V |
| [9] 3.53V (Enable) | [23] 0.60V |
| [10] 5.09V (Out USB2) | [24] 0.35V |
| [11] 5.09V (Out USB3) | [25] 1.24V |
| [12] 5.09V (USB2 Ctrl) | [26] 0.45V |
| [13] 5.09V (USB3 Ctrl) | [27] 0.45V |
| [14] 5.04V (OCP2) | [28] Gnd |




IC3000
Micro Processor

| Pin | Pin |
|------------|------------|
| [1] 3.28V | [25] 0V |
| [2] 3.28V | [26] 3.53V |
| [3] 0.0V | [27] 3.53V |
| [4] 2.09V | [28] 0.03V |
| [5] 0.06V | [29] 0.1V |
| [6] 3.5V | [30] 0V |
| [7] 3.49V | [31] 3.34V |
| [8] 3.53V | [32] 3.53V |
| [9] 0V | [33] 3.53V |
| [10] 3.53V | [34] 3.75V |
| [11] 3.53V | [35] 0V |
| [12] 0V | [36] 0V |
| [13] 3.51V | [37] 0.02V |
| [14] 3.68V | [38] 0V |
| [15] 3.53V | [39] 3.53V |
| [16] 0V | [40] 3.53V |
| [17] 3.48V | [41] 0.65V |
| [18] 3.53V | [42] 0.13V |
| [19] 3.29V | [43] 0V |
| [20] 3.32V | [44] 0V |
| [21] 3.53V | [45] 0V |
| [22] 0V | [46] 2.09V |
| [23] 0V | [47] Gnd |
| [24] 0.1V | [48] 3.53V |




IC3500
+5V_NORMAL Regulator

| Pin | Pin |
|------------------------|-------------------|
| [1] 24.68V (In) | [15] 5.04V (OCP2) |
| [2] 24.68V (In) | [16] 5.09V |
| [3] 24.68V (In) | [17] 5.09V |
| [4] Gnd | [18] 12.04V |
| [5] Gnd | [19] 5.09V (Out) |
| [6] Gnd | [20] 5.09V (Out) |
| [7] 6.25V | [21] 5.09V (Out) |
| [8] 6.25V | [22] 1.94V |
| [9] 3.53V (Enable) | [23] 0.60V |
| [10] 5.09V (Out USB2) | [24] 0.35V |
| [11] 5.09V (Out USB3) | [25] 1.24V |
| [12] 5.09V (USB2 Ctrl) | [26] 0.45V |
| [13] 5.09V (USB3 Ctrl) | [27] 0.45V |
| [14] 5.04V (OCP2) | [28] Gnd |




IC12501
+1.1V_U14_VDD Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.15V | [15] 11.95V (In) |
| [2] 5.06V | [16] 11.95V (In) |
| [3] 3.42V (Enable) | [17] 11.95V (In) |
| [4] 6.17V | [18] n/c |
| [5] n/c | [19] 11.95V (In) |
| [6] 1.14V (Out) | [20] 5.06V |
| [7] 1.14V (Out) | [21] 5.05V |
| [8] 1.14V (Out) | [22] Gnd |
| [9] 1.14V (Out) | [23] Gnd |
| [10] Gnd | [24] 0.61V |
| [11] Gnd | [25] 1.12V |
| [12] Gnd | [26] 0.39V |
| [13] Gnd | [27] n/c |
| [14] Gnd | [28] Gnd |



IC13402
VDDC Regulator

| Pin | Pin |
|--------------------|------------------|
| [1] 1.19V | [15] 11.62V (In) |
| [2] 5.19V | [16] 11.62V (In) |
| [3] 3.51V (Enable) | [17] 11.62V (In) |
| [4] 6.34V | [18] n/c |
| [5] n/c | [19] 11.62V (In) |
| [6] 1.19V (Out) | [20] 5.20V |
| [7] 1.19V (Out) | [21] 5.20V |
| [8] 1.19V (Out) | [22] Gnd |
| [9] 1.19V (Out) | [23] 0.6V |
| [10] Gnd | [24] 0.39V |
| [11] Gnd | [25] 0V |
| [12] Gnd | [26] Gnd |
| [13] Gnd | [27] Gnd |
| [14] Gnd | [28] Gnd |






IC4402
USB 3 Processor

| | |
|------|-----------|
| Pin | |
| [1] | n/c |
| [2] | n/c |
| [3] | 3.3V (In) |
| [4] | 3.3V |
| [5] | 3.3V |
| [6] | n/c |
| [7] | 3.27V |
| [8] | 3.27V |
| [9] | Gnd |
| [10] | 1.45V |
| [11] | 1.45V |
| [12] | Gnd |
| [13] | 3.3V (In) |
| [14] | 0.08V |
| [15] | 0V |
| [16] | 1.63V |
| [17] | 3.23V |
| [18] | n/c |
| [19] | 3.26V |
| [20] | 3.26V |
| [21] | Gnd |
| [22] | 2.63V |
| [23] | 2.63V |
| [24] | n/c |

IC5200
Ethernet IC

| | |
|------|------------|
| Pin | |
| [1] | 0V |
| [2] | 1.1V |
| [3] | 1.1V |
| [4] | 1.1V |
| [5] | 1.1V |
| [6] | 1.1V |
| [7] | 3.51V (In) |
| [8] | 0.03V |
| [9] | 0V |
| [10] | 0V |
| [11] | 0V |
| [12] | 0V |
| [13] | n/c |
| [14] | 3.51V (In) |
| [15] | 1.32V |
| [16] | 0V |
| [17] | 0V |
| [18] | n/c |
| [19] | n/c |
| [20] | 0V |
| [21] | 3.26V |
| [22] | 1.23V |
| [23] | 3.25V |
| [24] | 3.25V |
| [25] | 3.24V |
| [26] | 0V |
| [27] | 0V |
| [28] | 0V |
| [29] | 1.08V |
| [30] | 3.51V (In) |
| [31] | 0V |
| [32] | 0.58V |

IC5500
Center Amp

| | |
|---------|------------------|
| Pin | |
| [1] | n/c |
| [2] | 1.29V |
| [3] | n/c |
| [4] | Gnd |
| [5] | n/c |
| [6] | 1.27V |
| [7] | 1.14V |
| [8] | 1.63V |
| [9] | 1.63V |
| [10] | 0V |
| [11] | 3.09V |
| [12] | 3.27V (Mute) |
| [13] | n/c |
| [14] | 1.36V |
| [15] | n/c |
| [16] | 7.46V |
| [17] | Gnd |
| [18] | 2.77V (C_SPK_R-) |
| [19-20] | 24V (R B+) |

IC5600
Front Amp

| | |
|---------|--------------------|
| Pin | |
| [1] | n/c |
| [2] | 1.29V |
| [3] | n/c |
| [4] | Gnd |
| [5] | n/c |
| [6] | 1.27V |
| [7] | 1.14V |
| [8] | 1.63V |
| [9] | 1.63V |
| [10] | 0V |
| [11] | 3.09V |
| [12] | 3.27V (Mute) |
| [13] | n/c |
| [14] | 1.36V |
| [15] | n/c |
| [16] | 7.46V |
| [17] | Gnd |
| [18] | 2.77V (Out SPK_R-) |
| [19-20] | 24V (R B+) |

IC5700
Woofers Left Amp

| | |
|---------|------------------|
| Pin | |
| [21] | 2.77V (C_SPK_R+) |
| [22] | Gnd |
| [23] | 7.47V |
| [24] | 5.17V |
| [25] | Gnd |
| [26] | n/c |
| [27] | 5.16V |
| [28] | 7.46V |
| [29] | Gnd |
| [30] | 2.77V (C_SPK_L-) |
| [31-32] | 24V (L B+) |
| [33] | 2.77V (C_SPK_L+) |
| [34] | Gnd |
| [35] | 7.45V |
| [36] | 3.20V (Reset) |
| [37] | Gnd |
| [38] | 1.66V |
| [39] | Gnd |
| [40] | 3.34 (In) |

IC5800
Height Speaker Audio Amp

| | |
|---------|--------------------|
| Pin | |
| [21] | 2.77V (Out SPK_R+) |
| [22] | Gnd |
| [23] | 7.47V |
| [24] | 5.17V |
| [25] | Gnd |
| [26] | n/c |
| [27] | 5.16V |
| [28] | 7.46V |
| [29] | Gnd |
| [30] | 2.77V (Out SPK_L-) |
| [31-32] | 24V (L B+) |
| [33] | 2.77V (Out SPK_L+) |
| [34] | Gnd |
| [35] | 7.45V |
| [36] | 3.20V (Reset) |
| [37] | Gnd |
| [38] | 1.66V |
| [39] | Gnd |
| [40] | 3.34V (In) |

IC5900
Woofers Right Amp

| | |
|---------|-------------------------|
| Pin | |
| [21] | 11.99V (SPK_Woofers R+) |
| [22] | Gnd |
| [23] | 4.76V |
| [24] | 5.14V |
| [25] | 5.14V |
| [26] | n/c |
| [27] | 5.14V |
| [28] | 16.63V |
| [29] | Gnd |
| [30] | 11.99V (SPK_Woofers L-) |
| [31-32] | 24V (L B+) |
| [33] | 11.99V (SPK_Woofers R-) |
| [34] | Gnd |
| [35] | 16.64V |
| [36] | 3.21V (Reset) |
| [37] | Gnd |
| [38] | 1.66V |
| [39] | Gnd |
| [40] | 3.34V (In) |

IC6100
Earphone IC

| | |
|------|------------|
| Pin | |
| [1] | Gnd |
| [2] | 0V (R-In) |
| [3] | 0V (R-Out) |
| [4] | Gnd |
| [5] | (Mute) |
| [6] | (-3.16V) |
| [7] | (-1.57V) |
| [8] | 1.64V |
| [9] | 3.31V (In) |
| [10] | Gnd |
| [11] | n/c |
| [12] | 0V (L-Out) |
| [13] | 0V (L-In) |
| [14] | Gnd |

IC6601
RS232 Routing

| | |
|------|---------------|
| Pin | |
| [1] | 3.53V |
| [2] | 5.69V |
| [3] | 0V |
| [4] | 0V |
| [5] | (-5.60V) |
| [6] | (-5.63V) |
| [7] | n/c (5.64V) |
| [8] | n/c (0V) |
| [9] | n/c (3.49V) |
| [10] | n/c (0V) |
| [11] | 3.34V |
| [12] | 3.48V |
| [13] | 0V |
| [14] | (-5.59V) |
| [15] | 0V (Gnd) |
| [16] | 3.5V (Vcc In) |

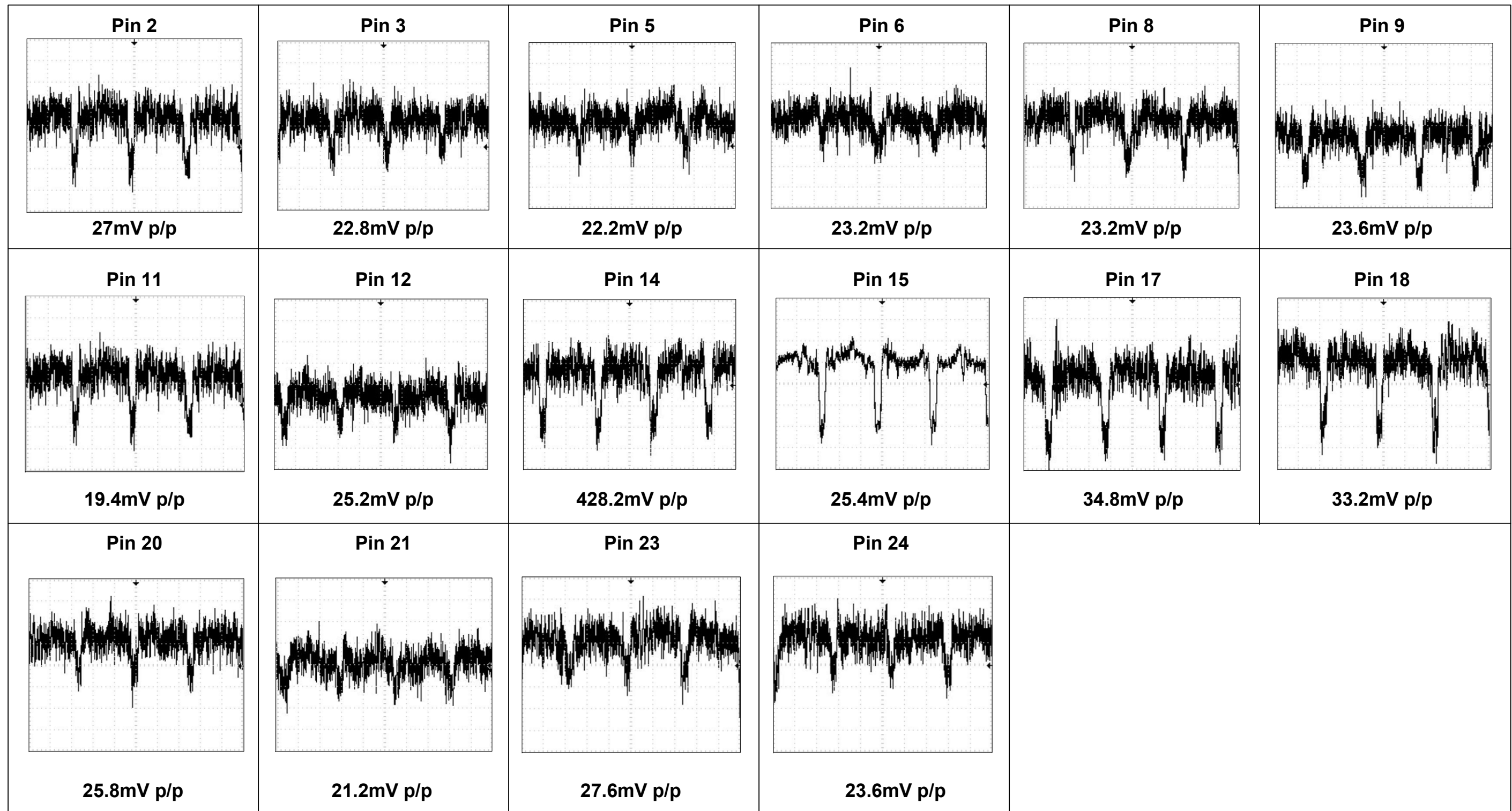


84UB9800 P13000 and P13001 Connector (Vx1) Video Waveforms

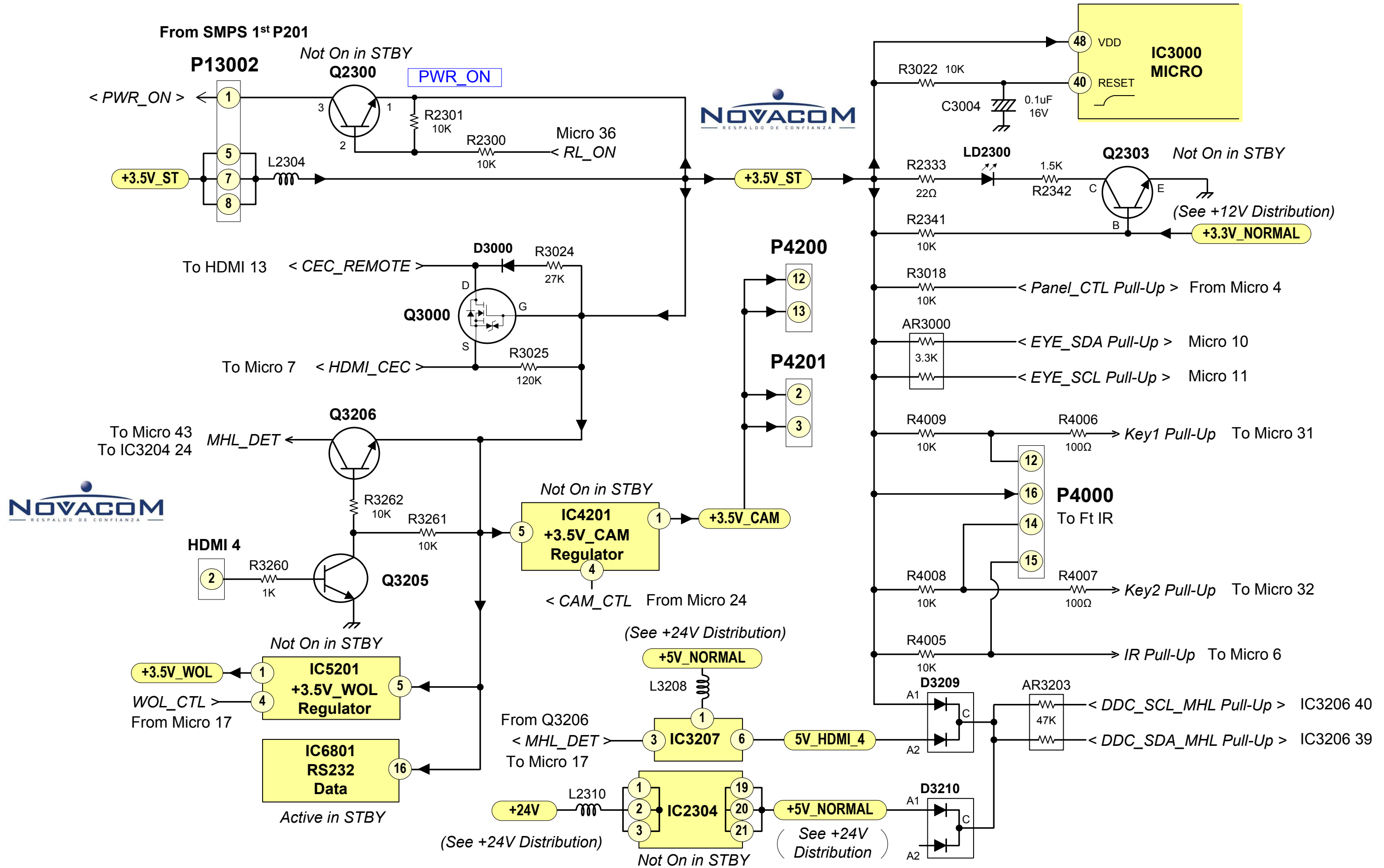
All Vx1 (V-by-One) signals are taken with SMPTY Color Bar signal input (1080P) Component Input.

All Vx1 signals are "Differential Pairs".

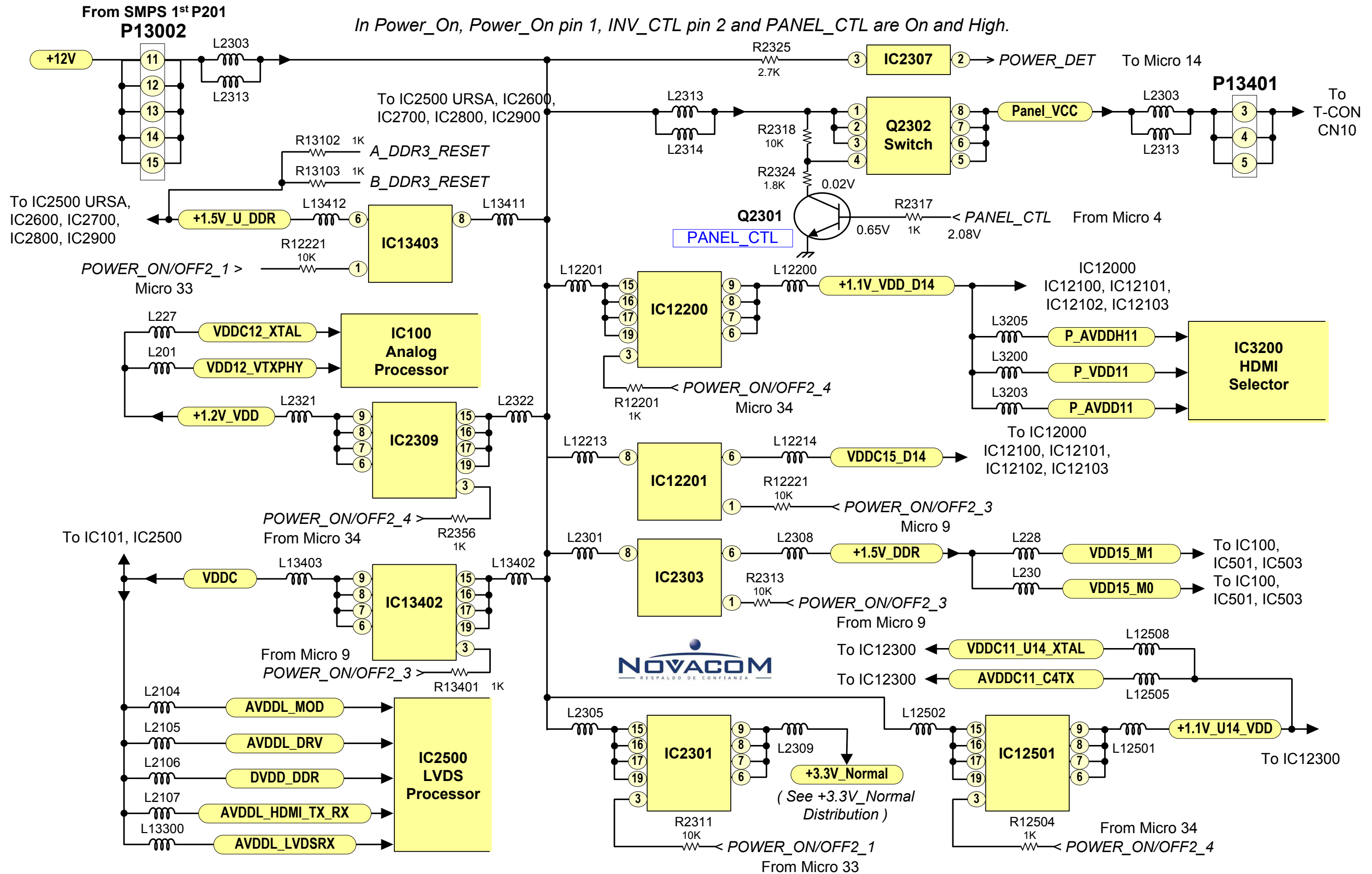
Scope Settings are 5mV per/division, 100uSec per/division. Note: P13001 Vx1 Signals appear similar.



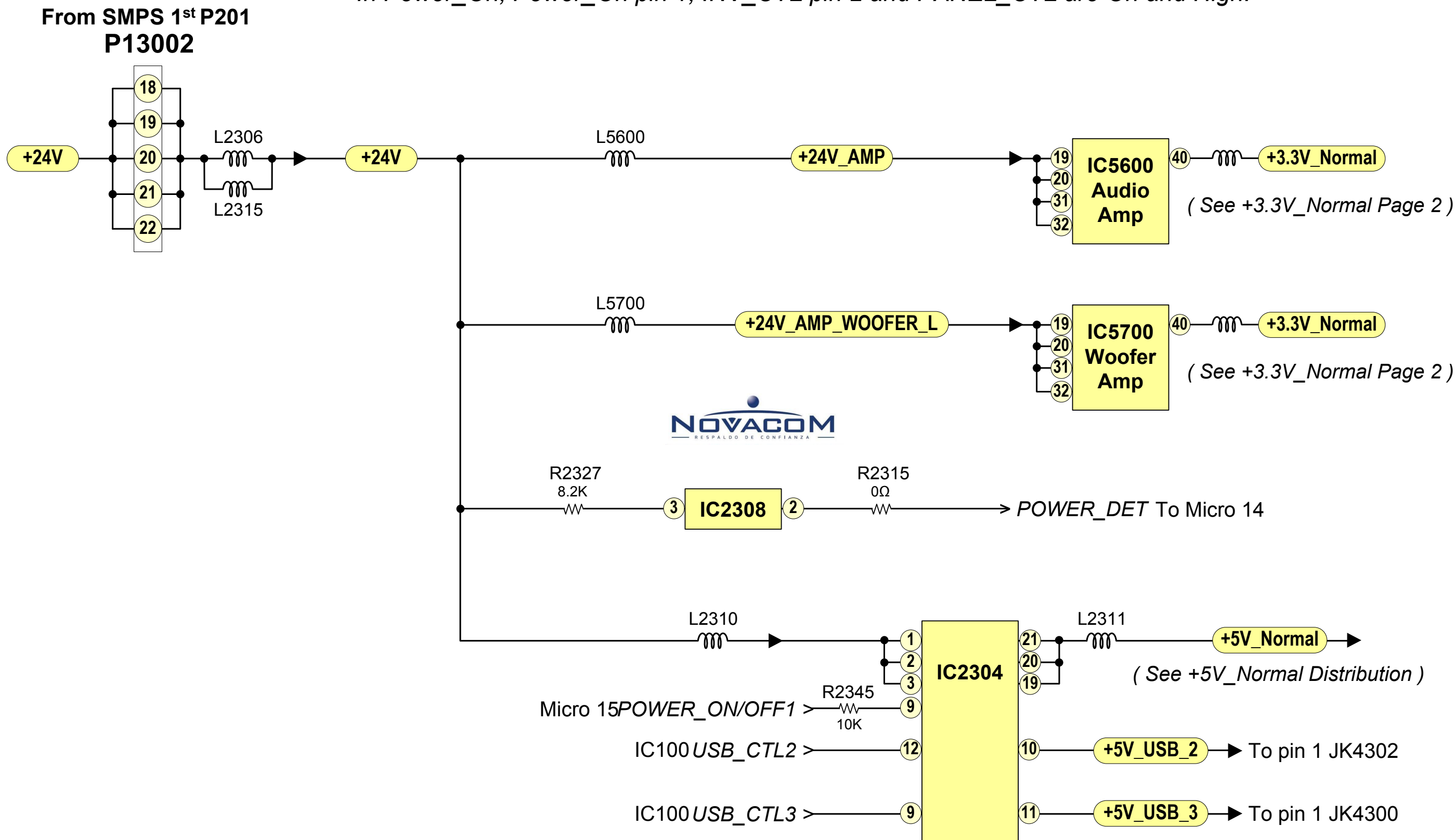
84UB9800 +3.5V_ST Voltage Distribution (In Stand-By)

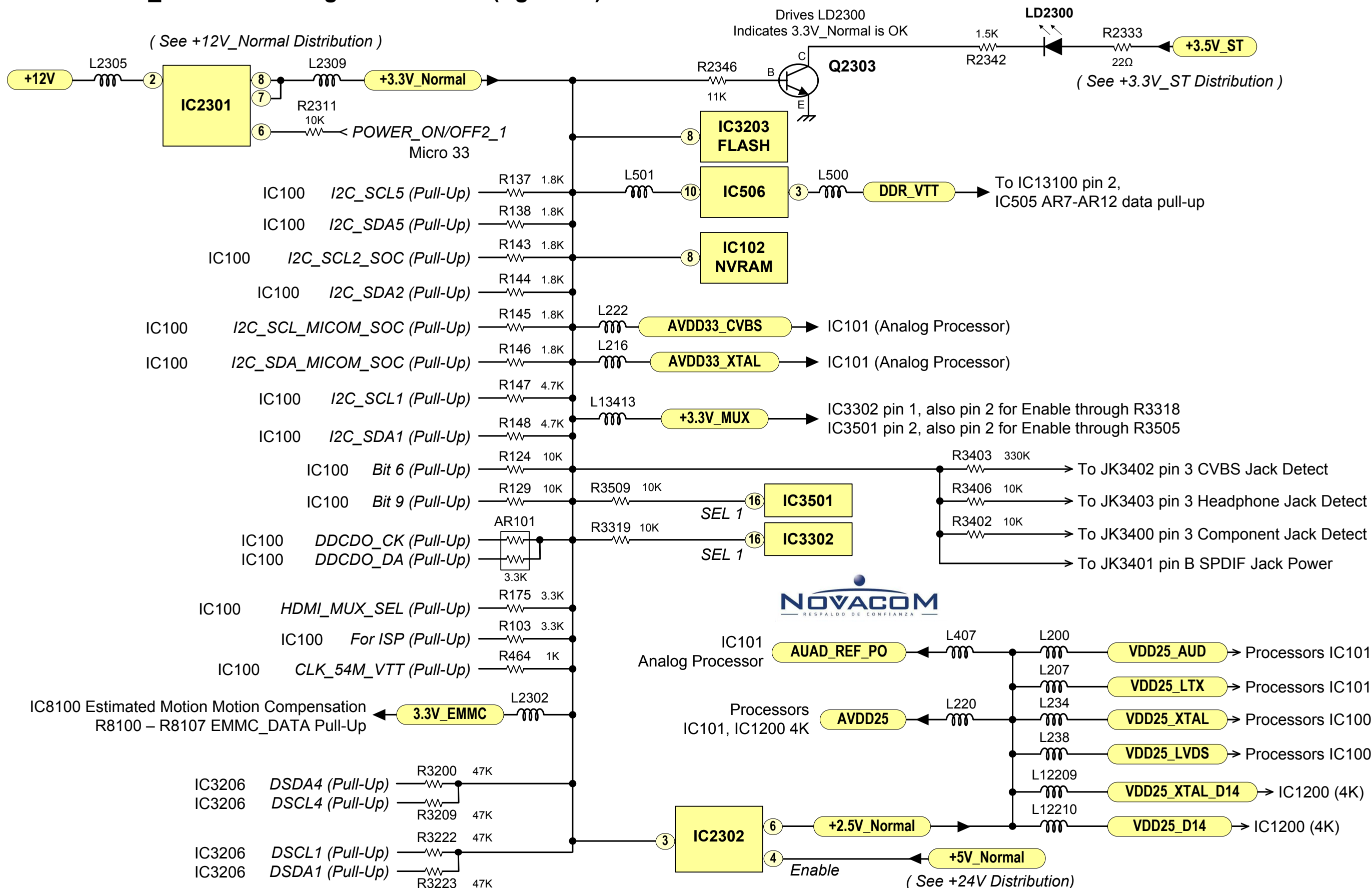


84UB9800 +12V Voltage Distribution (Power On)



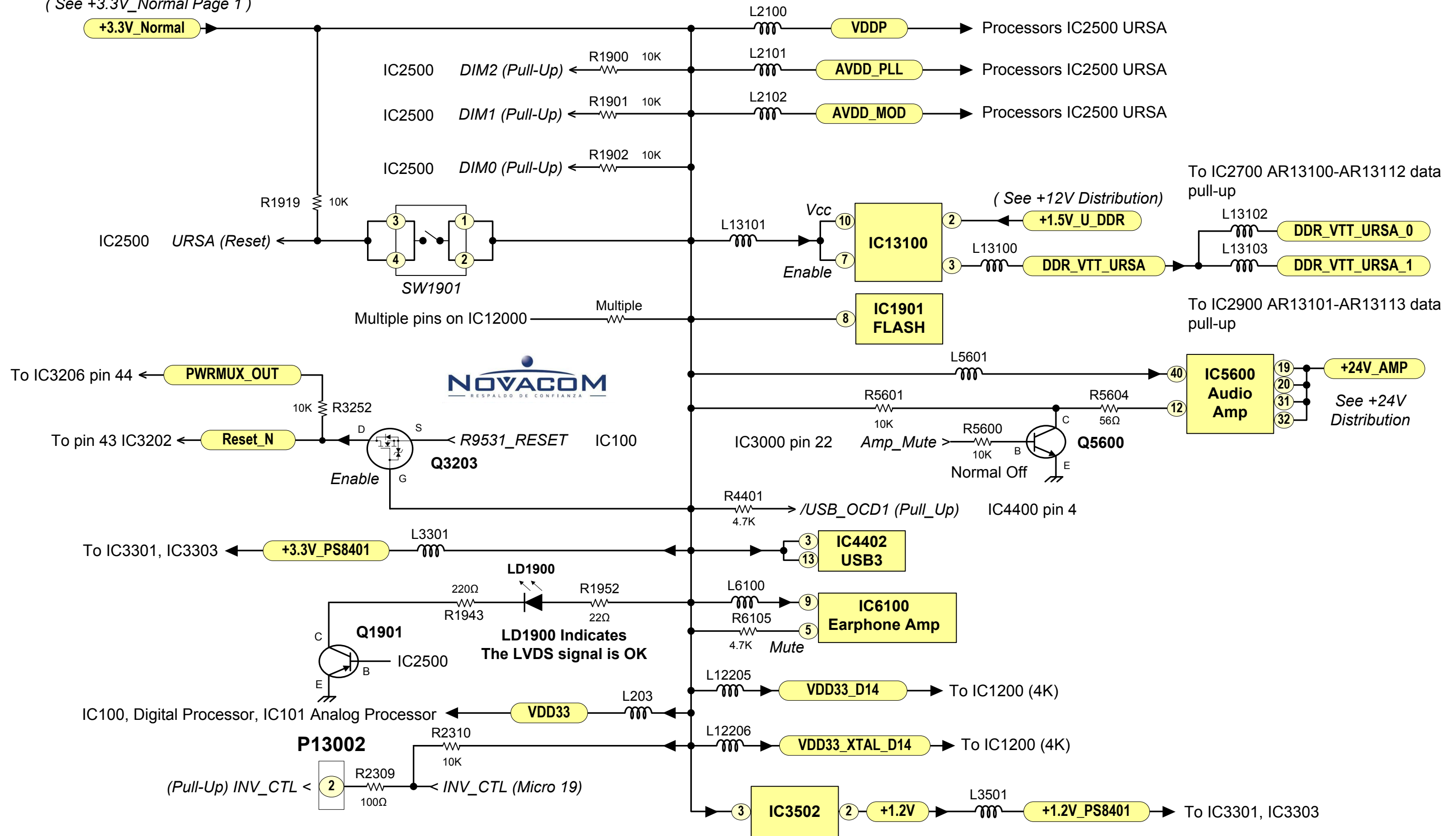
In Power_On, Power_On pin 1, INV_CTL pin 2 and PANEL_CTL are On and High.



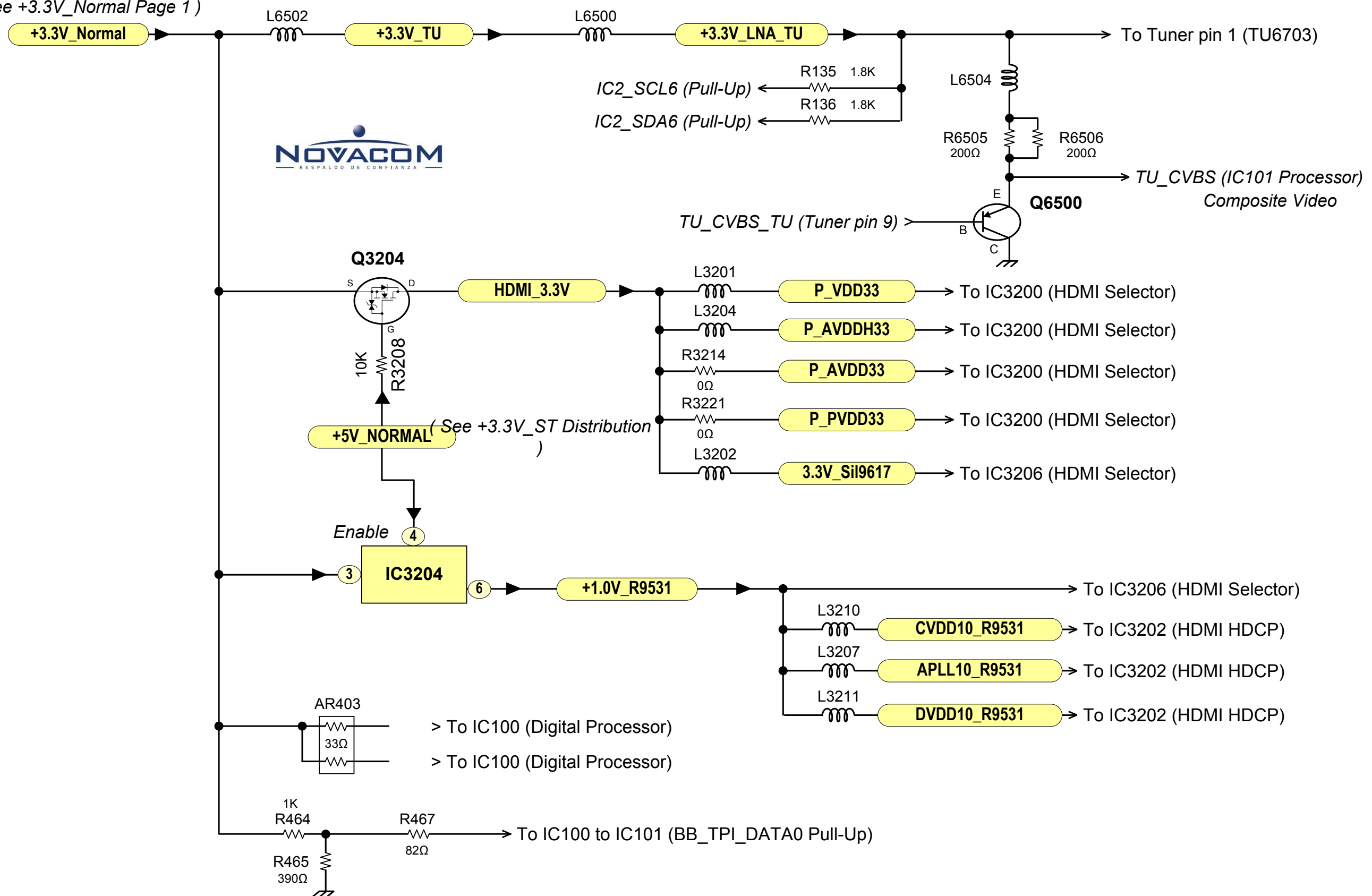


84UB9800 +3.3V_NORMAL Voltage Distribution (Pg 2 of 3)

(See +3.3V_Normal Page 1)

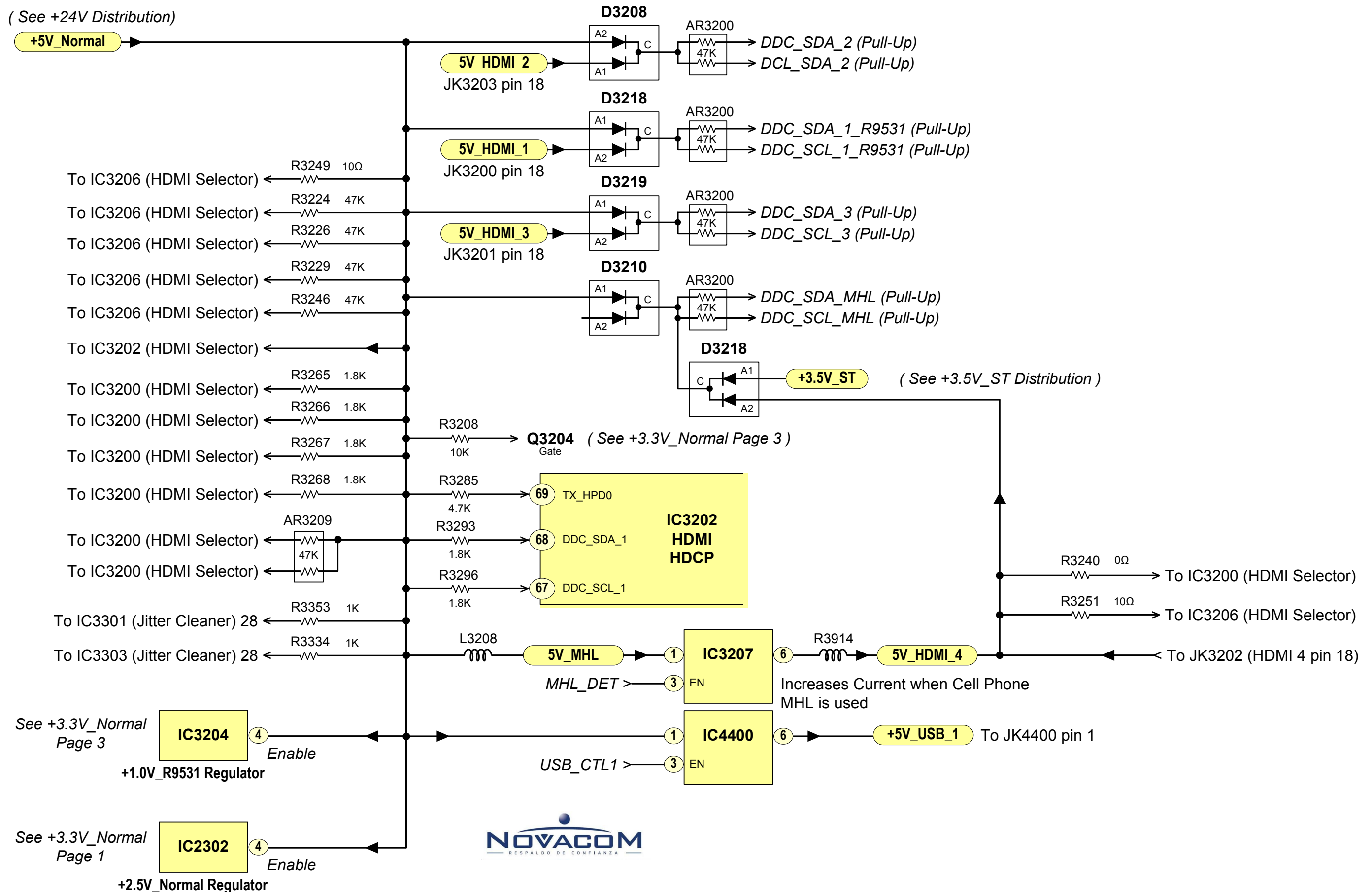


(See +3.3V_Normal Page 1)



84UB9800 +5V_NORMAL Voltage Distribution (Power On)


(See +24V Distribution)



84UB9800 T-CON Component Voltages


OP1

| Pin | DC |
|-----|--------|
| 1 | 5.75V |
| 2 | 5.75V |
| 3 | 5.75V |
| 4 | Gnd |
| 5 | 5.75V |
| 6 | 5.75V |
| 7 | 5.75V |
| 8 | 16.35V |




OP2

| Pin | DC |
|-----|--------|
| 1 | 5.75V |
| 2 | 5.75V |
| 3 | 5.75V |
| 4 | Gnd |
| 5 | 5.75V |
| 6 | 5.75V |
| 7 | 5.75V |
| 8 | 16.35V |




U10

| Pin | DC |
|-----|-------|
| 1 | Gnd |
| 2 | Gnd |
| 3 | Gnd |
| 4 | Gnd |
| 5 | 3.33V |
| 6 | 3.33V |
| 7 | 3.32V |
| 8 | 3.33V |



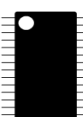
U23

| Pin | DC |
|-----|--------|
| 1 | 12.29V |
| 2 | 11.78V |
| 3 | 8.11V |
| 4 | Gnd |
| 5 | 0.93V |
| 6 | 1.10V |
| 7 | 3.23V |
| 8 | 3.63V |



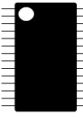
U15

| Pin | RUN |
|-----|--------|
| 1 | 5.75V |
| 2 | 0V |
| 3 | 15.60V |
| 4 | 0V |
| 5 | 13.21V |
| 6 | 12.11V |
| 7 | 11.70V |
| 8 | Gnd |
| 9 | 16.38V |
| 10 | 10.11V |
| 11 | 8.33V |
| 12 | 7.92V |
| 13 | 3.33V |
| 14 | 3.32V |




U15_1

| Pin | RUN |
|-----|--------|
| 1 | 5.75V |
| 2 | 0V |
| 3 | 15.60V |
| 4 | 0V |
| 5 | 13.21V |
| 6 | 12.11V |
| 7 | 11.70V |
| 8 | Gnd |
| 9 | 16.38V |
| 10 | 10.11V |
| 11 | 8.33V |
| 12 | 7.92V |
| 13 | 3.33V |
| 14 | 3.32V |




U24

| Pin | DC |
|-----|--------|
| 1 | 12.29V |
| 2 | 11.78V |
| 3 | 8.11V |
| 4 | Gnd |
| 5 | 0.93V |
| 6 | 1.10V |
| 7 | 3.23V |
| 8 | 3.63V |



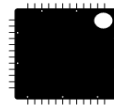
U134

| Pin | RUN |
|-----|-------|
| 1 | 0.21V |
| 2 | 1.46V |
| 3 | 3.23V |



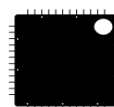
U449

| Pin | RUN |
|-----|--------|
| 15 | 3.32V |
| 16 | 0V |
| 17 | 3.33V |
| 18 | Gnd |
| 19 | 5.73V |
| 20 | 5.26V |
| 21 | 3.78V |
| 22 | 2.72V |
| 23 | 16.38V |
| 24 | Gnd |
| 25 | 1.99V |
| 26 | 10.32V |
| 27 | 1.99V |
| 28 | 5.79V |



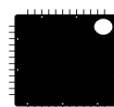
U450

| Pin | RUN |
|-----|--------|
| 15 | 3.32V |
| 16 | 0V |
| 17 | 3.33V |
| 18 | Gnd |
| 19 | 5.73V |
| 20 | 5.26V |
| 21 | 3.78V |
| 22 | 2.72V |
| 23 | 16.38V |
| 24 | Gnd |
| 25 | 1.99V |
| 26 | 10.32V |
| 27 | 1.99V |
| 28 | 5.79V |



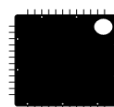
U449

| Pin | RUN |
|-----|--------|
| 1 | Gnd |
| 2 | 0V |
| 3 | 3.25V |
| 4 | 0.20V |
| 5 | 1.97V |
| 6 | 3.33V |
| 7 | 0.16V |
| 8 | 25.45V |
| 9 | 29.49V |
| 10 | 1.23V |
| 11 | Gnd |
| 12 | 8.00V |
| 13 | 16.49V |
| 14 | 7.16V |
| 15 | Gnd |
| 16 | 0.03V |
| 17 | 1.26V |
| 18 | 4.25V |
| 19 | n/c |
| 20 | n/c |
| 21 | 0V |
| 22 | 10.06V |
| 23 | 2.05V |
| 24 | 2.05V |




U449

| Pin | RUN |
|-----|--------|
| 1 | Gnd |
| 2 | 0V |
| 3 | 3.25V |
| 4 | 0.20V |
| 5 | 1.97V |
| 6 | 3.33V |
| 7 | 0.16V |
| 8 | 25.45V |
| 9 | 29.49V |
| 10 | 1.23V |
| 11 | Gnd |
| 12 | 8.00V |
| 13 | 16.49V |
| 14 | 7.16V |
| 15 | Gnd |
| 16 | 0.03V |
| 17 | 1.26V |
| 18 | 4.25V |
| 19 | n/c |
| 20 | n/c |
| 21 | 0V |
| 22 | 10.06V |
| 23 | 2.05V |
| 24 | 2.05V |




U263

| Pin | RUN |
|-----|--------|
| 25 | 11.81V |
| 26 | 11.81V |
| 27 | 11.54V |
| 28 | 4.26V |
| 29 | 4.25V |
| 30 | 1.89V |
| 31 | 0.61V |
| 32 | 3.37V |
| 33 | 5.85V |
| 34 | Gnd |
| 35 | Gnd |
| 36 | Gnd |
| 37 | 11.78V |
| 38 | 11.78V |
| 39 | 16.48V |
| 40 | 1.27V |
| 41 | 16.42V |
| 42 | 16.49V |
| 43 | 16.50V |
| 44 | 0V |
| 45 | Gnd |
| 46 | 0V |
| 47 | Gnd |
| 48 | 0V |




U450

| Pin | DC |
|-----|-------|
| 1 | 3.23V |
| 2 | 3.23V |
| 3 | 0V |
| 4 | Gnd |
| 5 | 3.24V |
| 6 | 3.24V |
| 7 | 3.24V |
| 8 | 3.24V |




U263

| Pin | RUN |
|-----|--------|
| 25 | 11.81V |
| 26 | 11.81V |
| 27 | 11.54V |
| 28 | 4.26V |
| 29 | 4.25V |
| 30 | 1.89V |
| 31 | 0.61V |
| 32 | 3.37V |
| 33 | 5.85V |
| 34 | Gnd |
| 35 | Gnd |
| 36 | Gnd |
| 37 | 11.78V |
| 38 | 11.78V |
| 39 | 16.48V |
| 40 | 1.27V |
| 41 | 16.42V |
| 42 | 16.49V |
| 43 | 16.50V |
| 44 | 0V |
| 45 | Gnd |
| 46 | 0V |
| 47 | Gnd |
| 48 | 0V |




Q1

| Pin | RUN |
|-----|-------|
| 1 | 2.74V |
| 2 | 3.31V |
| 3 | 0V |




D2

| Pin | DC |
|-----|--------|
| C | 16.57V |
| A | 11.59V |




D5

| Pin | RUN |
|-----|--------|
| 1 | 14.84V |
| 2 | 22.01V |
| 3 | 29.45V |




D6

| Pin | RUN |
|-----|----------|
| 1 | (-7.21V) |
| 2 | (-3.34V) |
| 3 | Gnd |




D7

| Pin | DC |
|-----|-------|
| C | 3.37V |
| A | Gnd |




D8

| Pin | DC |
|-----|--------|
| C | 16.57V |
| A | 11.69V |




D9

| Pin | DC |
|-----|-------|
| C | 3.37V |
| A | Gnd |




D10

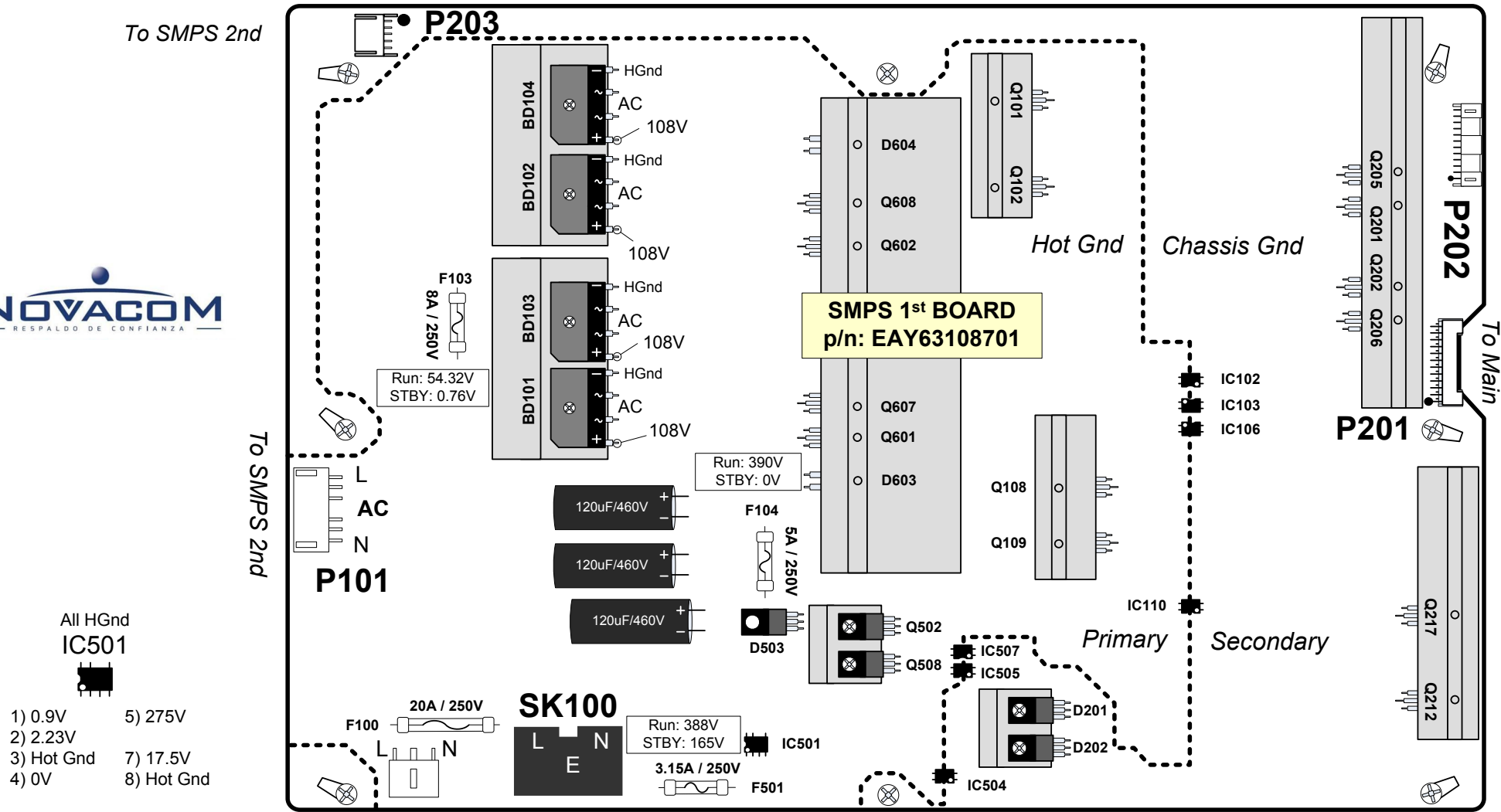
| Pin | RUN |
|-----|----------|
| 1 | (-7.21V) |
| 2 | (-3.34V) |
| 3 | Gnd |



D11

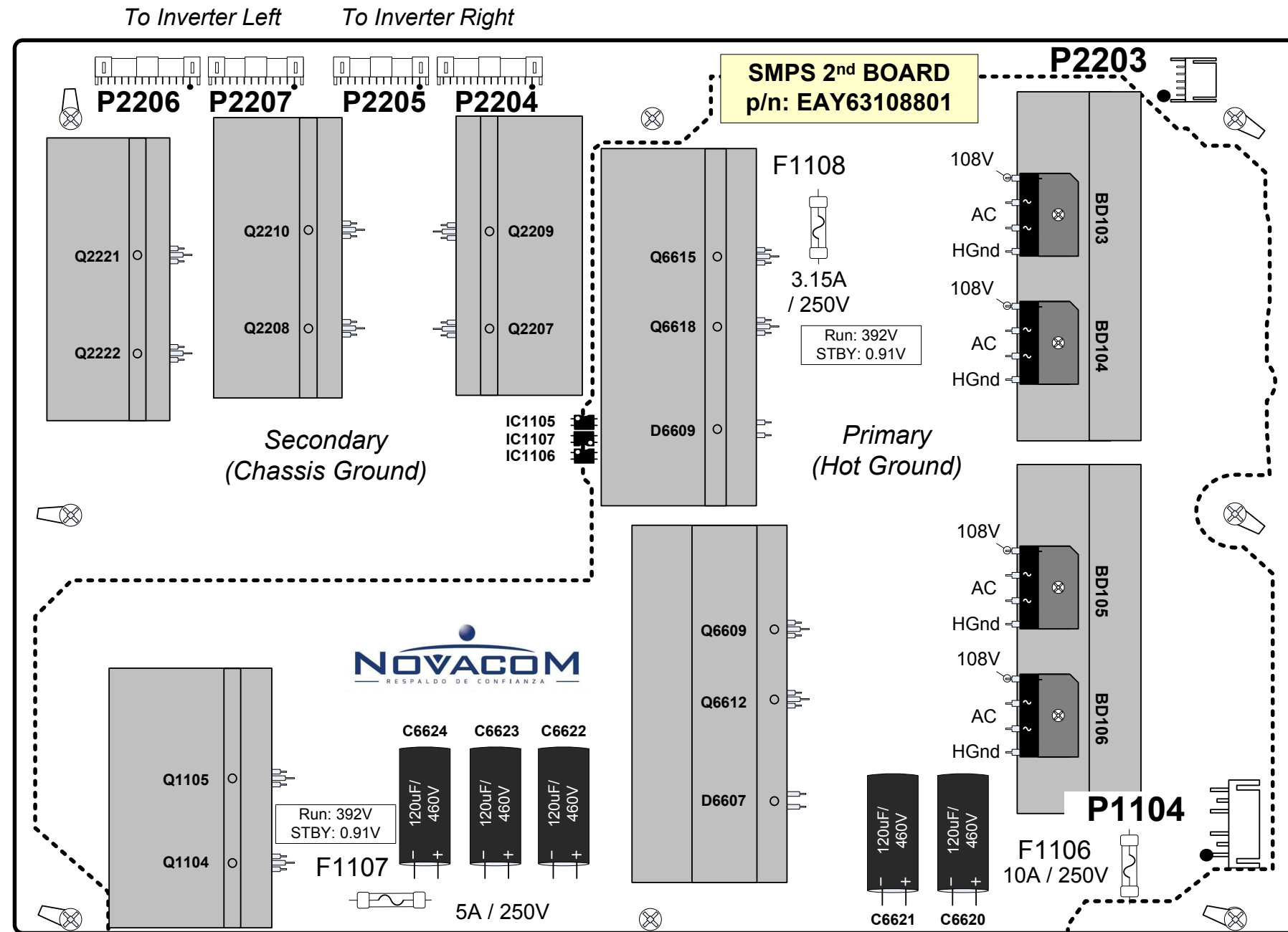
| Pin | RUN |
|-----|--------|
| 1 | 14.84V |
| 2 | 22.01V |
| 3 | 29.45V |



- All HGnd
IC501
- 1) 0.9V
 - 2) 2.23V
 - 3) Hot Gnd
 - 4) 0V
 - 5) 275V
 - 6) 0.76V
 - 7) 17.5V
 - 8) Hot Gnd

| | | | | | | | | | |
|---|---|---|--|---|--|--|--|--|--|
| IC102 HGnd 2.18V 0.92V 3.20V Hot Gnd Chassis | IC110 HGnd 8.28V 0.83V 9.3V Hot Gnd Chassis | IC507 10.94V 0.03V 10.85V 1.19V Hot Gnd Chassis | D503 3) 14.95V 2) 16.94V 1) 15.61V | D604 2) 97V 1) 389.5V | Q108 3) 189.5V 2) 389.5V 1) 184V | Q202 1) Gnd 2) 12.06V 3) 4.26V | Q212 1) Gnd 2) 24.02V 3) 4.35V | Q601 1) HGnd 2) 95V 3) 6.0V | Q608 1) HGnd 2) 98.6V 3) 4.96V |
| IC103 14.54V 3.44V 13.76V 0.02V Hot Gnd Chassis | IC504 HGnd 1.99V 2.36V 3.0V Hot Gnd Chassis | D201 3) (-0.02V) 2) 3.46V 1) Gnd | D508 3) 17.49V 2) 19.06V 1) 16.86V | Q101 3) 1.87V 2) 309.5V 1) 184V | Q109 3) 6.37V 2) 185V 1) HGnd | Q205 1) Gnd 2) 12.06V 3) 4.03V | Q217 1) Gnd 2) 24.02V 3) 4.68V | Q602 1) HGnd 2) 97V 3) 4.96V | Q608 1) HGnd 2) 98.6V 3) 4.96V |
| IC106 17.5V 0.03V 17.57V 1.19V Hot Gnd Chassis | IC505 17.51V 1.45V 17.55V 2.66V Hot Gnd Chassis | D202 3) (-0.02V) 2) 3.46V 1) Gnd | D603 2) 97V 1) 389.5V | Q102 3) 6.38V 2) 184.8 1) 0V | Q201 1) Gnd 2) 12.06V 3) 4.03V | Q206 1) Gnd 2) 12.06V 3) 4.26V | Q502 3) 17.49V 2) 19.02V 1) 16.84V | Q607 1) HGnd 2) 96.7V 3) 5.97V | |



D6607

 2) 391.7V
 1) 391.7V

Q1104

 3) 196.1V
 2) 391.7V
 1) 194V

Q2207

 1) Gnd
 2) 23.77V
 3) 4.34V

Q2209

 1) Gnd
 2) 23.77V
 3) 4.21V

Q2221

 3) 4.14V
 2) 23.76V
 1) Gnd

Q6609

 3) 8.18V
 2) 90.6V
 1) 0.06V

Q6615

 3) 7.87V
 2) 90.7V
 1) HGnd

IC1105

 1.10V 0.2V
 OV HGnd
 Chassis Hot Gnd

IC1107

 0.15V 13.41V
 3.44V 13.98V
 Chassis Hot Gnd

D6609

 2) 391.7V
 1) 86V

Q1105

 3) 6.07V
 2) 191.7V
 1) 0V

Q2208

 3) 4.27V
 2) 23.77V
 1) Gnd

Q2210

 3) 4.20V
 2) 23.8V
 1) Gnd

Q2222

 3) 4.50V
 2) 23.79V
 1) Gnd

Q6612

 3) 8.17V
 2) 90.6V
 1) HGnd

Q6618

 3) 7.87V
 2) 90.7V
 1) HGnd

IC1106

 11.40V 1.75V
 10.43V Hot Gnd
 Chassis Hot Gnd

OLED65G6P INTERCONNECT DIAGRAM

T-CON IS PART OF THE PANEL ITSELF, ALL OTHER BOARDS ARE IN THE STAND

T-CON TROUBLESHOOTING:

Confirm all connections are good going to the T-CON.
 CN6, CN10 (Vx1) CN5, CN11 (Power)
 CN13, 14, 16, 17 (To the Panel)
 Confirm 12V and 24V are arriving at CN5 and CN11
 Confirm at least these 5 voltages are going to the panel
 on CN17 and/or CN14

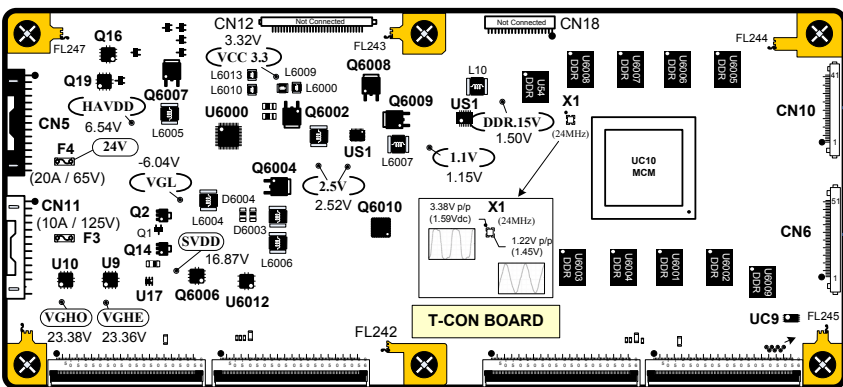
PANEL p/n: EAJ63727601

Panel comes with the T-CON

Q6002: (1) 4.56V, (2) 12V (3) 3.35V
 Q6004: (1) 1.88V, (2) 12V (3) Gnd
 Q6007: (1) 6.89V, (2) 12V (3) 0V
 Q6008: (1) 1.65V, (2) 12V (3) 1.19V
 Q6009: (1) 4.34V, (2) 1.19V (3) Gnd

Warning: Make sure screws are in place, damage to the board may occur if they are left out.
 FL244 ~ FL247 are ground protect EMI Filters.
 Warning: Make sure before reassembling the Shield that the Heat Transfer materials "Chocolate" can be on back or front.

F4 = 24V
 F3 = 12V



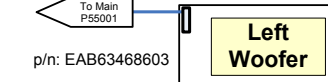
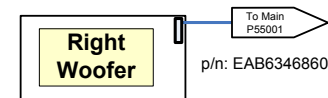
TO OLED PANEL (KEY VOLTAGES)

| | |
|--------------|----------------|
| Pin 1 | VGH_O (25.38V) |
| Pin 2 | VGH_E (25.36V) |
| Pins 4, 5 | VGL (-6.04V) |
| Pins 27 - 30 | SVDD (16.87V) |
| Pins 32 - 63 | 24V (23.91V) |
| Pins 34 - 65 | 24V (23.91V) |
| Pins 67 - 70 | SVDD (16.87V) |
| Pins 92, 93 | VGL (-6.04V) |
| Pin 95 | VGH_E (25.36V) |
| Pin 96 | VGH_O (25.38V) |

T-CON comes with the Panel

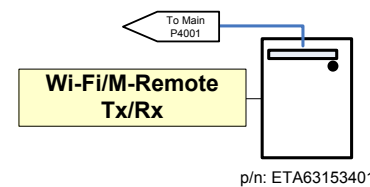
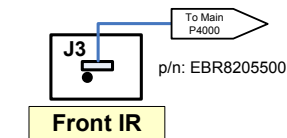
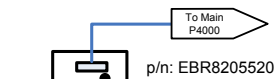
P4001 "Main" To "M-Remote/WiFi Module"

| Pin | Label | Run | Diode |
|-----|-------------------|-------|-------|
| 1 | Gnd | Gnd | Gnd |
| 2 | BT-RESET | 3.39V | OL |
| 3 | 3D_SYNC_RF | 3.46V | OL |
| 4 | WOL/WiFi_Power_On | 3.47V | OL |
| 5 | Gnd | Gnd | Gnd |
| 6 | WiFi_BT_DP | 0.03V | 1.70V |
| 7 | WiFi_BT_DM | 0.03V | 1.70V |
| 8 | +3.5V_WiFi | 3.49V | OL |



P4000 "MAIN Board" To "IR, Joy Stick" Board

| PIN | LABEL | STBY | RUN | Diode | To | Pin |
|-----|---------------|-------|-------|-------|-----------|-----|
| 1 | Gnd | Gnd | Gnd | Gnd | Joy Stick | 8 |
| 2 | +3.5V_Normal | 0V | 3.32V | OL | Joy Stick | 7 |
| 3 | +3.5V_Normal | 0V | 3.32V | OL | Joy Stick | 10 |
| 4 | 3.5V_ST | 3.51V | 3.49V | 1.30V | Joy Stick | 6 |
| 5 | Eye_SDA_Wall | Gnd | Gnd | Gnd | Ft IR | 9 |
| 6 | Accel | 0V | 0.32V | 1.30V | Joy Stick | 5 |
| 7 | Eye_SCL_Wall | 0V | 3.47V | 1.90V | Ft IR | 8 |
| 8 | Gnd | Gnd | Gnd | Gnd | Joy Stick | 4 |
| 9 | Eye_SDA_Stand | 3.56V | 3.52V | 1.99V | Ft IR | 7 |
| 10 | Gnd | Gnd | Gnd | Gnd | Joy Stick | 3 |
| 11 | Eye_SDA_Stand | 3.56V | 3.52V | 1.99V | Ft IR | 6 |
| 12 | Key 1 | 3.51V | 3.49V | 1.98V | Joy Stick | 2 |
| 13 | Gnd | Gnd | Gnd | Gnd | Ft IR | 5 |
| 14 | Key 2 | 3.51V | 3.49V | 1.98V | Joy Stick | 1 |
| 15 | IR | 3.54V | 3.50V | 1.89V | Ft IR | 4 |
| 16 | +3.5V_ST | 3.51V | 3.49V | 1.24V | Ft IR | 3 |
| 17 | Logo_Light | 2.78V | 0V | OL | Ft IR | 2 |
| 18 | Gnd | Gnd | Gnd | Gnd | Ft IR | 1 |

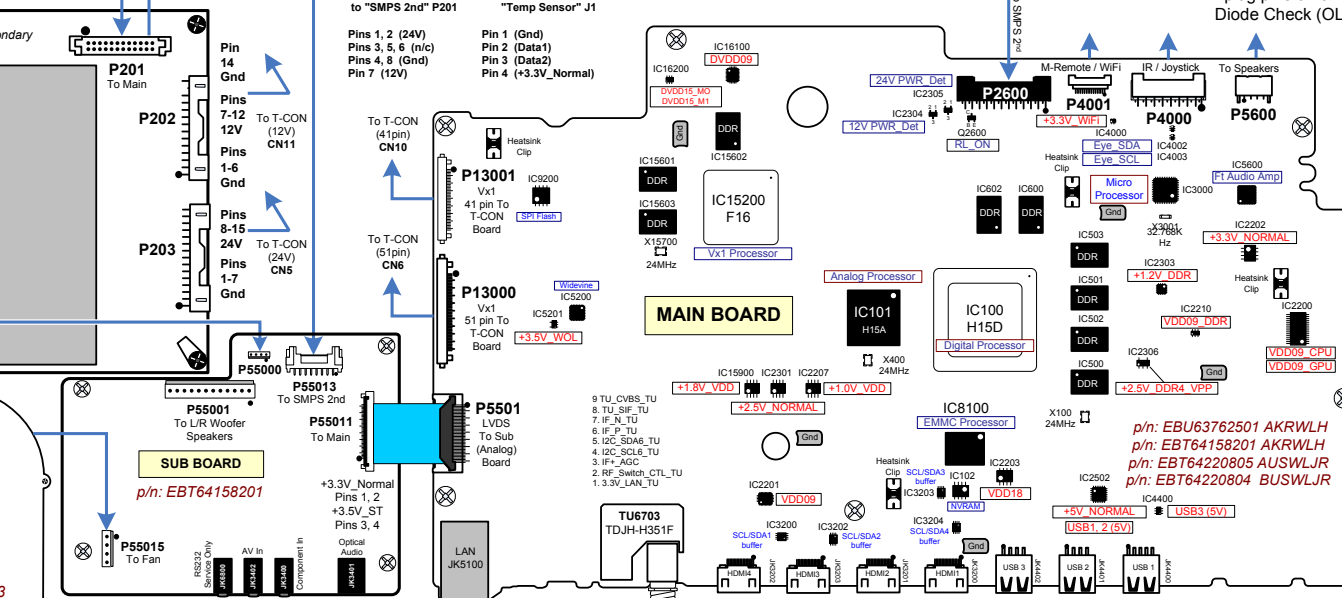
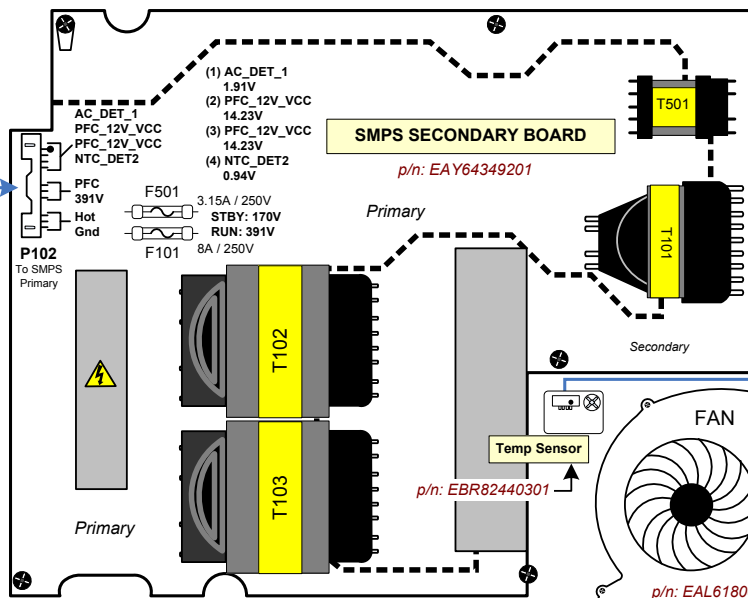
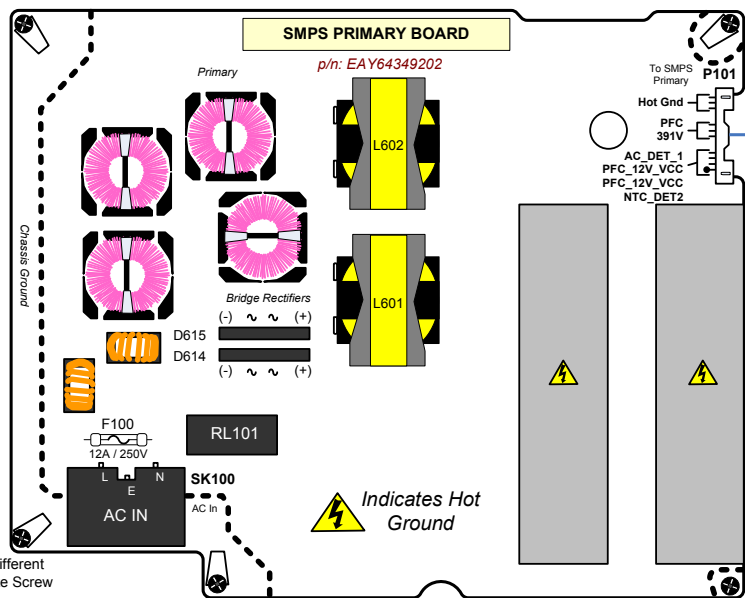


P201 "SMPS" to "Main"

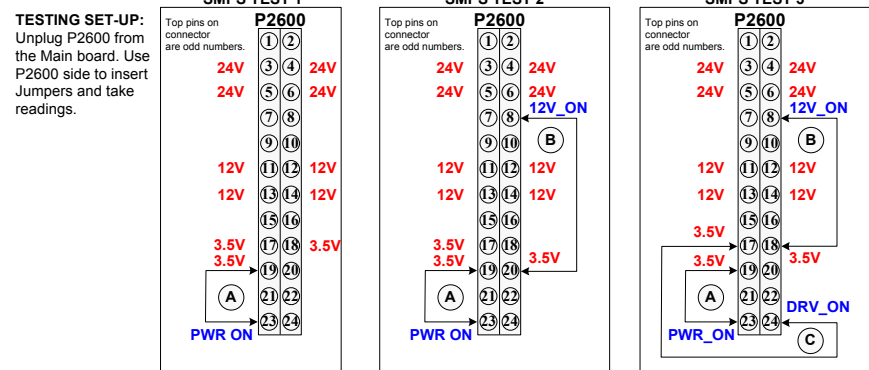
| Pin | Diode Check |
|---------|-------------|
| 22,23 | Gnd |
| 19 - 22 | 1.39V |
| 18 | OL |
| 16,17 | Gnd |
| 11 - 15 | 1.48V |
| 6,9,10 | Gnd |
| 5,7,8 | OL |
| 4 | 2.96V |
| 3 | OL |
| 2 | OL |
| 1 | 1.20V |

12V DIODE CHECK
 Blk on Gnd 0.40V
 Red on Gnd 0.36V All Connected
 1.15 0.45V No SMPS

24V DIODE CHECK
 Blk on Gnd 0.31V
 Red on Gnd 0.26V All Connected
 OL 0.35V No SMPS with Panel
 OL 0.65V No SMPS or Panel



TESTING THE POWER SUPPLY (SMPS) WITHOUT THE MAIN BOARD



SMPS TEST:

TEST 1: Short PWR_ON to 3.5V_ST. Turns on 12V and 24V to the Main
TEST 2: Leave Test 1 short in place. Short 12V_ON to 3.5V_ST. Turns on 12V to T-CON.
TEST 3: Leave Test 1 and Test 2 shorts in place. Short DRV_ON to 3.5V_ST. Turns on 24V to T-CON.

Unplug AC Power when adding or removing a Jumper.
 All readings from Chassis Ground.

POWER SUPPLY TEST (Power Supply Secondary Board)

| MAIN | P201 "POWER 2nd" to Main | 12V and 24V to T-CON | 12V to T-CON | 24V to T-CON | |
|----------|--------------------------|----------------------|--------------|--------------|--------|
| Pin | Pin | Label | Test 1 | Test 2 | Test 3 |
| 4 P55013 | 23 | Gnd | Gnd | Gnd | Gnd |
| 4 | 22 | 24V | 23.98V | 23.85V | 24.66V |
| 2 P55013 | 21 | 24V | 23.98V | 23.85V | 24.66V |
| 6 | 20 | 24V | 23.98V | 23.85V | 24.66V |
| 1 P55013 | 19 | 24V | 23.98V | 23.85V | 24.66V |
| 8 | 18 | 12V_ON | 0V | 3.51V | 3.51V |
| 8 P55013 | 17 | Gnd | Gnd | Gnd | Gnd |
| 10 | 16 | Gnd | Gnd | Gnd | Gnd |
| 7 P55013 | 15 | 12V | 12.91V | 11.97V | 11.97V |
| 12 | 14 | 12V | 12.91V | 11.97V | 11.97V |
| 11 | 13 | 12V | 12.91V | 11.97V | 11.97V |
| 14 | 12 | 12V | 12.91V | 11.97V | 11.97V |
| 13 | 11 | 12V | 12.91V | 11.97V | 11.97V |
| 16 | 10 | Gnd | Gnd | Gnd | Gnd |
| 18 | 9 | Gnd | Gnd | Gnd | Gnd |
| 18 | 8 | 3.5V_ST | 3.51V | 3.51V | 3.51V |
| 17 | 7 | 3.5V_ST | 3.51V | 3.51V | 3.51V |
| 19 | 6 | Gnd | Gnd | Gnd | Gnd |
| 20 | 5 | 3.5V_ST | 3.51V | 3.51V | 3.51V |
| 22 | 4 | AC_DET | 3.77V | 3.76V | 3.75V |
| 21 | 3 | DPC | 0V | 0V | 0V |
| 24 | 2 | DRV_ON | 0V | 0V | 3.51V |
| 23 | 1 | RL_ON | 3.51V | 3.51V | 3.51V |

P201 "SMPS Board" to P2600 "MAIN Board"

| PIN | LABEL | RUN | PIN | LABEL | RUN | |
|-----|-------|------|-------|--------|--------|-------|
| 4 | 23 | Gnd | 24 | Gnd | Gnd | |
| 2 | 21 | 24V | 22 | 24V | 24.31V | |
| 4 | 19 | 24V | 20 | 24V | 24.31V | |
| 6 | 17 | Gnd | 18 | 12V_ON | 3.49V | |
| 8 | 15 | 12V | 16 | Gnd | Gnd | |
| 10 | 13 | 12V | 14 | 12V | 11.98V | |
| 12 | 11 | 12V | 12 | 12V | 11.98V | |
| 14 | 9 | Gnd | 10 | Gnd | Gnd | |
| 16 | 7 | 3.5V | 8 | 3.5V | 3.50V | |
| 18 | 5 | 3.5V | 6 | Gnd | Gnd | |
| 20 | 3 | DPC | 0.0V | 4 | ACD | 3.64V |
| 22 | 1 | P_ON | 3.04V | 2 | DRV_ON | 3.03V |

P2600 "MAIN Board" Pins are Inverted (Outside pin numbers) but by rows only. (12 pins per row Odd/Even).
 Odd pins are on Top Row on Main, Back Row on SMPS.

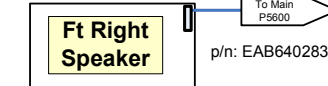
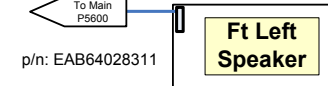
- (1) PWR_ON: turns on the 12V and 24V lines. to the Main. (Not the 24V to the T-CON)
- (2) 12V_ON: turns on the 12V to the T-CON.
- (3) INV_ON: (DRV_ON on the SMPS) turns on the 24V to the T-CON.
- (4) AC_DET: If missing will prevent the TV from coming on. Power Light blinks 3 times, the relay clicks off.
- (5) DPC: Places the Power Supply in Power Saving Mode.
- (6) Pins 15, 17, 19, 21, 23 of P201 goes to P55013 on the Sub (Analog) board.

| Connected | Diode Checks | Disconnected |
|-----------------|--|--|
| 3.5V_ST to Main | 1.12V (Blk on Gnd) 0.18V (Red on Gnd) | OL (Blk on Gnd) 0.18V (Red on Gnd) |
| 24V to Main | 1.23V (Blk on Gnd) 0.35V (Red on Gnd) | 1.40V (Blk on Gnd) 0.36V (Red on Gnd) |
| 12V to Main | 1.13V (Blk on Gnd) 0.14V (Red on Gnd) | 1.17V (Blk on Gnd) 0.14V (Red on Gnd) |

P2600 to SMPS

| Pin | Diode Check |
|---------------|-------------|
| 1,3,5,7 | n/c |
| 2 | Gnd |
| 4,6 | 24V |
| 8 | 12V_ON |
| 9,11,12,13,14 | 12V |
| 10,15,16 | Gnd |
| 17,18,19 | 3.5V_ST |
| 20 | Gnd |
| 21 | DPC |
| 22 | AC_DET |
| 23 | RL_ON |
| 24 | INV_ON |

For DC voltages See P201 Chart



P55015 "SUB Board" to "FAN"

| Pin | Label | Run | Diode |
|-------|------------|-----|-------|
| Pin 1 | 12V | OL | OL |
| Pin 2 | Gnd | Gnd | Gnd |
| Pin 3 | Fan FG Sig | OL | OL |
| Pin 4 | PWM_FAN | OL | OL |

FG_Sig (3.40V peak/peak)
 PWM_Sig (3.36V peak/peak)