

EVLA Correlator Project Contract #31035-059127

AssyNotes: Assembly Notes for the Baseline Board 25080.

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Version: V2.2

Date: June 16, 2009

Updates

V2.0: First full release for Stage 2 build.

Reference	Description of changes/updates since last release
Oct. 22, 2007	V2.0 release.

V2.1: Full release for Stage 3 build.

Reference	Description of changes/updates since last release
June 23, 2008	V2.1 release
Unpopulated components	Updates have been made to unpopulated components list.
Moisture Baking	Section added for specifications on moisture baking parts in preparation for assembly.
Heatsink Mounting	Section added for specifications on heatsink mounting.
Adhesive	Section added for specifications and instructions for adhesive application on part # 25500-P-000074 to secure it to the board.
Jumper Installation	Section added for specifications and instructions for jumper installation.
Drawings	Drawing references updated

V2.2: Full release for Stage 3-2 build.

Reference	Description of changes/updates since last release
February 02, 2009	V2.2 release
JP1 pin cut	Instruction added to cut pins 1mm off.
Moisture Baking	WIDAR Part # for latest Accel regulator revision updated.
Power supply socket pins hand soldering	Hand soldering the power supply socket pins from the opposite side after press-fit process.
Drawings	Drawing references updated

V2.2 June 16, 2009

V2.2: Full release for Stage 4 build.

Reference	Description of changes/updates since last release
June 05, 2009	V2.2 updates for Stage 4
Assembly/Test Process	Instructions added for updated assembly and test process where the order of tasks has been modified to allow for successful boundary scan testing.

Introduction

This file contains the assembly notes for the Baseline Board 25080. Included in this description are instructions and drawings for the assembly that are not self-evident from the BOM and the PCB layout, references to additional more detailed drawings, etc.

Applicable ECOs

N/A.

Assembly Instructions

1. Non-populated Components:

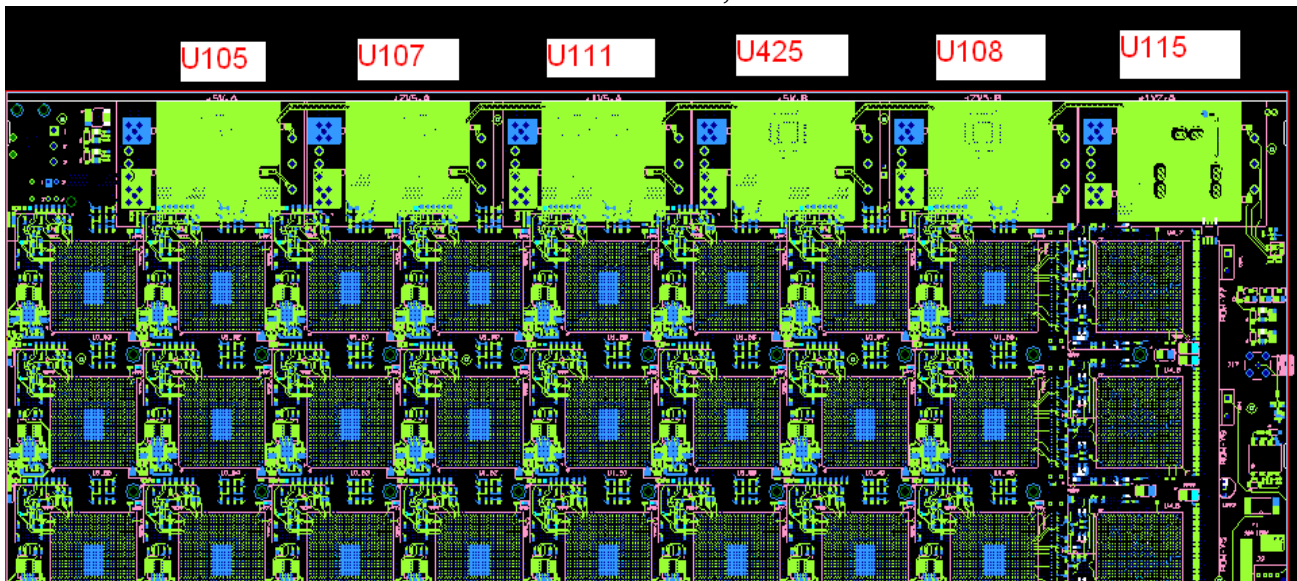
- J5, J5_1-J5_15, CAGE3-CAGE4, R213-R220, R6, R6_1-R6_15, R130-R131, R1479-R1480, R134-R139, R142-R143, R1525-R1526, R146-R151, R1516-R1521, R267-R268, R1546-R1551, R271-R276, R279-R280, R283-R288, R1554-R1555, L611, R700, R700_1-R700_63, R610, R610_1-R610_63, R2521-R2525, R2040-2049, R2051, R2016-R2017, R2058-R2064, R2020, R2022-R2025, R2027, R2526-R2589, R2593, R2596, R2598, R2600, R2602, R2604, R2606-R2607, R2621-R3244, P2, P6, P13-P14, P21-P22, P29-P30, P37-P38, P44-P45, P50, P54, P60, P64, P66, P72, P74, P80, P82, P88, P90, P96, P98, P104, J13-J14.

2. Hand-Mount Components:

- All Quarter-Brick power supplies need to be inserted into the pin sockets on the board. The individual power supply locations are shown in the following figures.

Top-side power supplies mounting:

V2.2 June 16, 2009



U105 -- LQS40A48-5V0RE

U425 -- LQS40A48-5V0RE

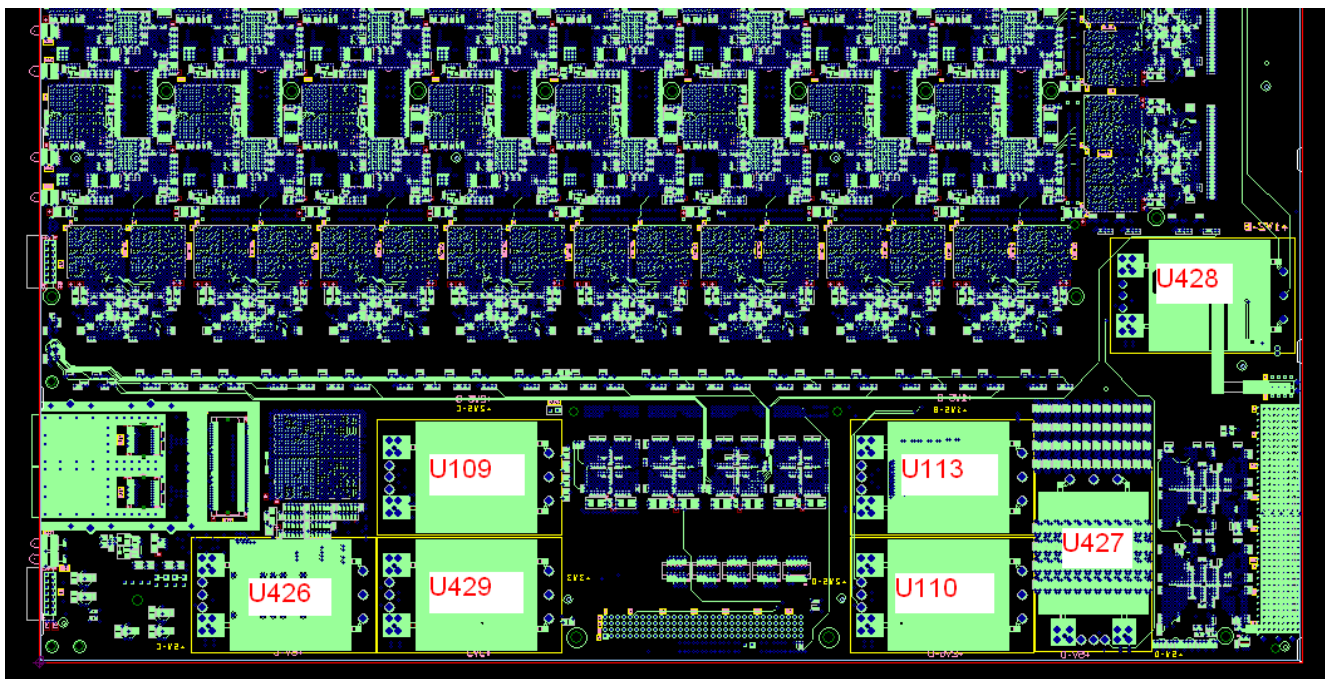
U107 -- LQS50A48-2V5RE

U108 -- LQS50A48-2V5RE

U111 -- LQS80A48-1V5RE

U115 -- LQS100A48-1V2RE

Bottom-side power supplies mounting:



U426 -- LQS40A48-5V0RE

U113 -- LQS80A48-1V5RE

U109 -- LQS50A48-2V5RE

U110 -- LQS50A48-2V5RE

U429 -- LQS50A48-3V3RE

U427 -- LQS40A48-5V0RE

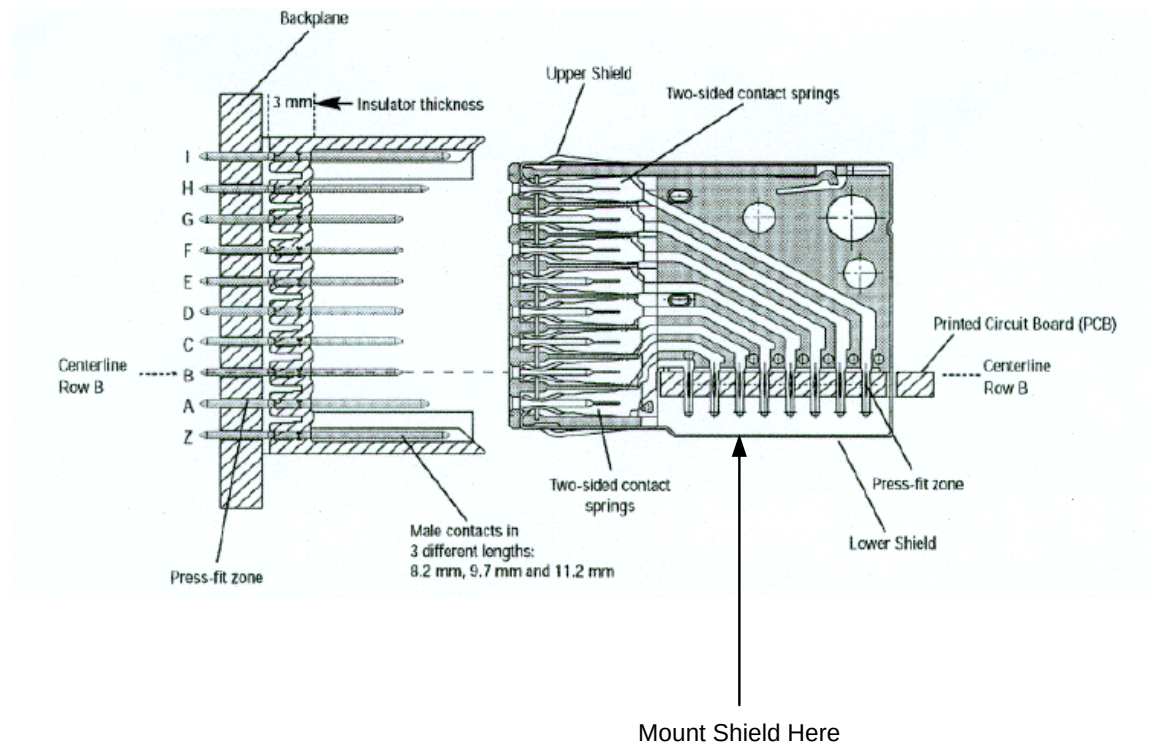
U428 -- LQS100A48-1V2RE

V2.2 June 16, 2009

- **U770 is a thru-hole power supply.** It must be **hand-soldered**, as the power supply cannot withstand board reflow temperatures.

3. Press-Fit Components:

- J1 is on the top and ERNI 11-row shield SH2 (25500-M-000003) is on the bottom.
- J1_6 is on the top and ERNI 11-row shield SH2_6 (25500-M-000003) is on the bottom.
- J2 is on the top and ERNI 25-row shield SH1 (25500-M-000002) is on the bottom.
- J2_6 is on the top and ERNI 25-row shield SH1_6 (25500-M-000002) is on the bottom.
- J3 and J3_6 are on the top.



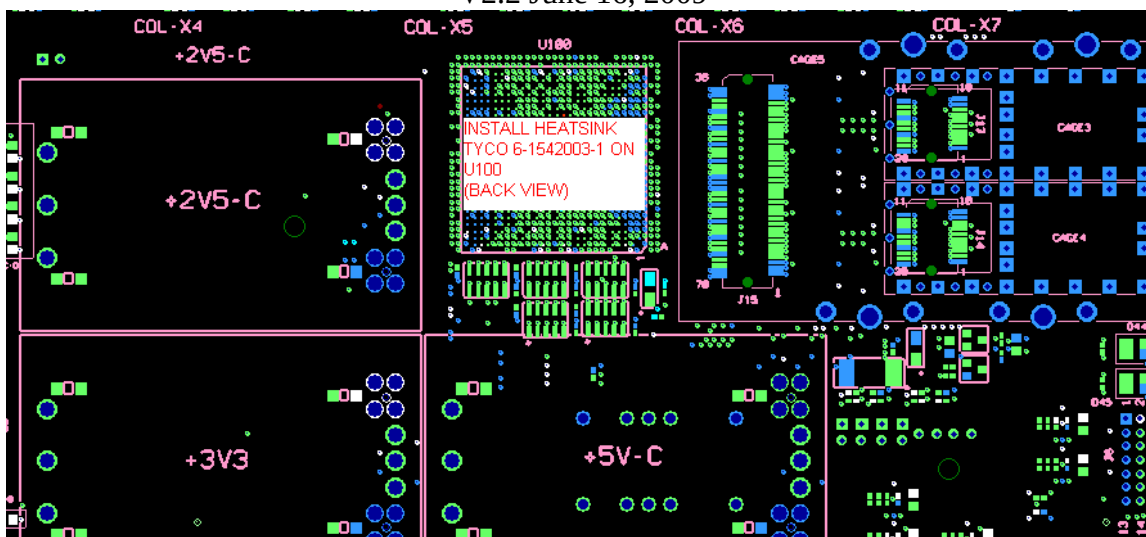
Mounting diagram for J1, J1_6, J2, J2_6 and their corresponding shields.

- **Press-Fit power supply socket pins:** P1, P3-P12, P15-P20, P23-P28, P31-P36, P39-P43, P46-P49, P51-P53, P55-P59, P61-P63, P65, P67-P71, P73, P75-P79, P81, P83-P87, P89, P91-P95, P97, P99-P104, P105-P182

4. U100 Heatsink Mounting

Install Tyco heatsink 6-1542003-1 (Ref. Des.: HS1) on U100 on the back side of PCB.

V2.2 June 16, 2009



5. Serial Number Setup

Bit assignments for the serial numbers are according to the following table:

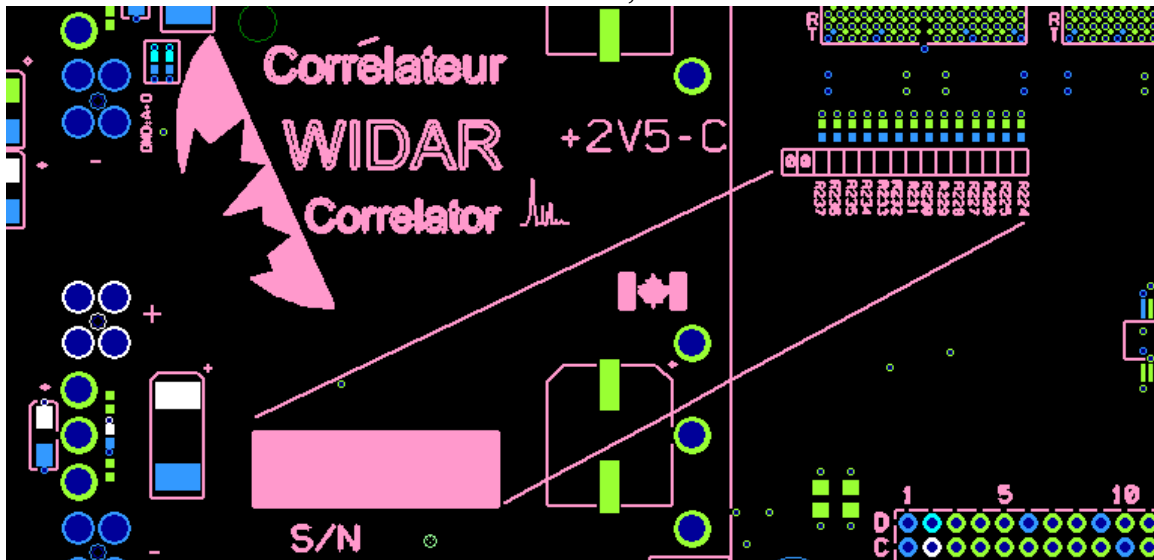
Ref Designator	Bit
fixed on board to 0	15
fixed on board to 0	14
R237	13
R236	12
R235	11
R234	10
R233	9
R232	8
R231	7
R230	6
R229	5
R228	4
R227	3
R226	2
R225	1
R224	0

If a resistor is INSTALLED, then the bit is 1. If resistor not installed, then the bit is 0.

EXAMPLES: for S/N 2001 Hex; R237, and R224 are installed; for S/N 2002 Hex, R237, and R225 are installed.

For the Stage 3-2 Baseline Board build the S/N range is: 2009-2010 .

V2.2 June 16, 2009



Write S/N in this silkscreen box on the top side.

6. Moisture Bake Cycle Information

Part Number: 25500-A-000145

Description: Accel regulator

Mfr: iSine

Manufacturer's Bake Cycle Specification:

Temp = 125°C

Bake time = 24 hours

Part Number: 25500-A-000074

Description: Correlator Chip ASIC

Mfr: iSine

Manufacturer's Bake Cycle Specification:

Temp = 125°C

Bake time = 24 hours

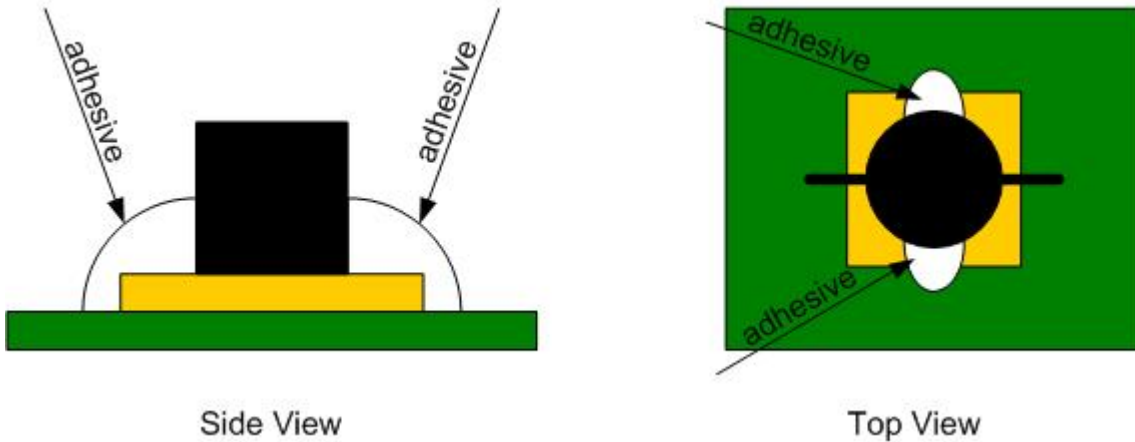
***Note: not required if package sealed and marked as moisture baked.

A survey should be performed on all other parts possibly requiring moisture baking as specified by the manufacturer.

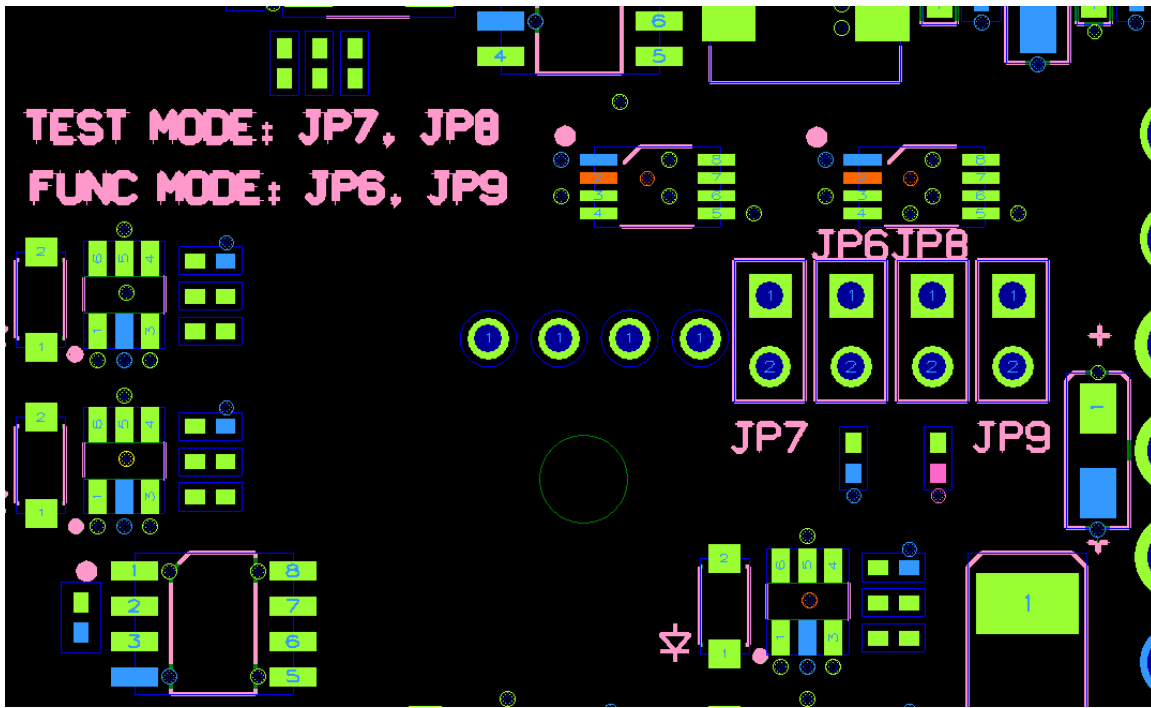
V2.2 June 16, 2009

7. Adhesive Application Instructions

Apply DOW CORNING adhesive 3145 RTV (25500-H-000002) on all electro capacitors 25500-P-000074 (reference designators: C447-C448, C450-C452, C454, C458-C460, C462, C1839-C1843) as indicated below.

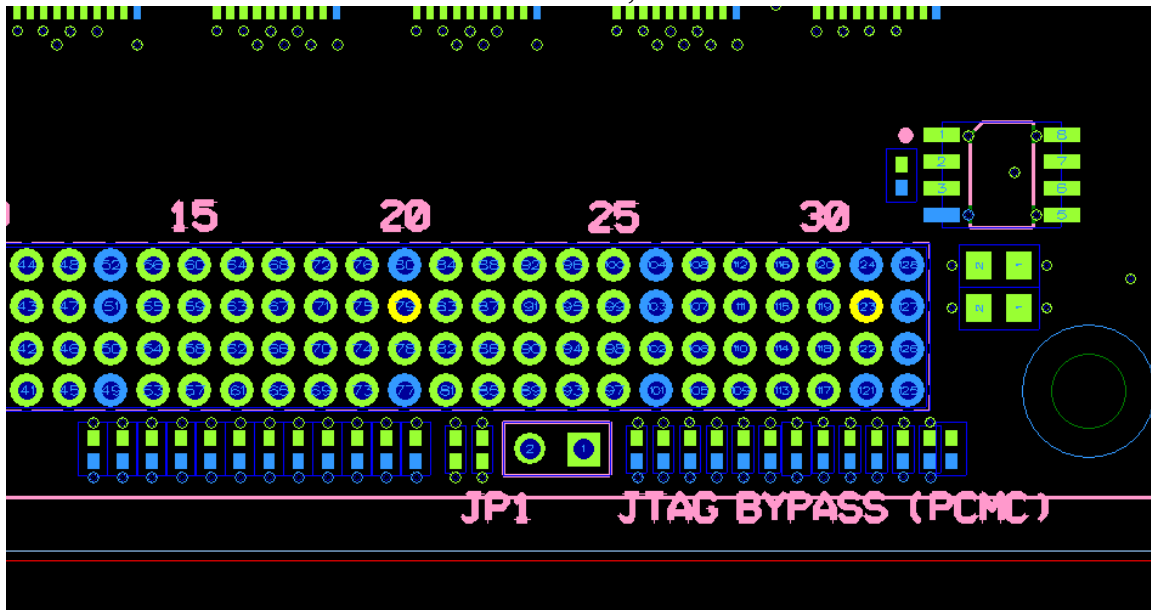


8. Jumper Installation Instructions



Install Samtec Shunt SNT-100-BL-G on JP7 and JP8.

V2.2 June 16, 2009



For Jumper JP1, cut the two pins 1mm off, and install Samtec Shunt SNT-100-BL-G on JP1.

9. Power Supply Socket Pins Hand Soldering

Use no-clean wire solder to hand solder all power supply socket pins from the opposite side after press-fit process. This is for mechanical enforcement on these socket pins.

10. Assembly/Test Process

Testing of the Stage 3-2 Baseline Boards revealed that it is not possible to successfully complete Boundary Scan Testing with the TCK capacitors installed. The order of operations described below allows for both Boundary Scan Testing capabilities and complete assembly of the board.

- a. Assembled board as per previous build, except do not install the following parts:

WIDAR PN	Reference Designators	Quantity
25500-P-000050	C4338-C4423	86

NOTE: These parts are not included in the no-pop section of the BOM as they are to be installed after Boundary Scan testing.

- b. Complete flying probe testing. Note: modifications will have to be made to the flying probe application due to the removal of the aforementioned capacitors.
- c. Perform Boundary Scan Testing and repair any discovered manufacturing defects.

V2.2 June 16, 2009

- d. Hand solder TCK capacitors: C4338 – C4423

References

Drawing	Vers	File name	Description
G25080A0006	V2.2	G25080A0006_BB_TopAssy Drwg_Changes_V2.2_Nov27- 08.pdf	Baseline Board V2.2 Top Layer Assembly Drawing → Includes mark-up of changes from V2.1 to V2.2
G25080A0007	V2.2	G25080A0007_BB_BottomAs syDrwg_changes_V2.2_Nov27 -08.pdf	Baseline Board V2.2 Bottom Layer Assembly Drawing → Includes mark-up of changes from V2.1 to V2.2