

Schematic Page Description

- 01. FRONT PAGE
- 02. 88F6281 - DDR2 SDRAM
- 03. GIGABIT ETHERNET
- 04. SATA, USB, PCIe, I2S
- 05. 88F6281 - POWER SUPPLY & BOOT STRAP
- 06. SD,NAND,JTAG,UART, I2C
- 07. VOLARI- Z11 INTERFACE
- 08. POWER SUPPLY & RESET
- 09. DUMMY PARTS

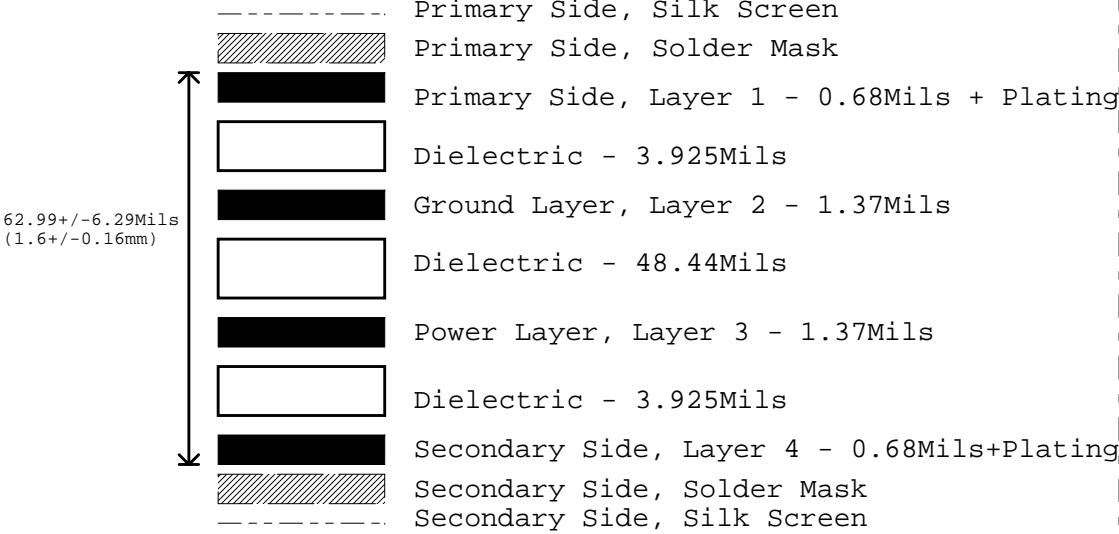
Schematic Notes

- 1. Resistors in OHM and Capacitors in Farad
- 2. NU Components are Not Used components.They are not populated on PCB.
- 3. Components which are populated in the OpenRD Client System only are grouped as:

CS ONLY
- 4. Components which are populated in the OpenRD Base System only are grouped as:

BS ONLY
- 5. Components that are part of both systems (BASE and CLIENT) are not grouped.

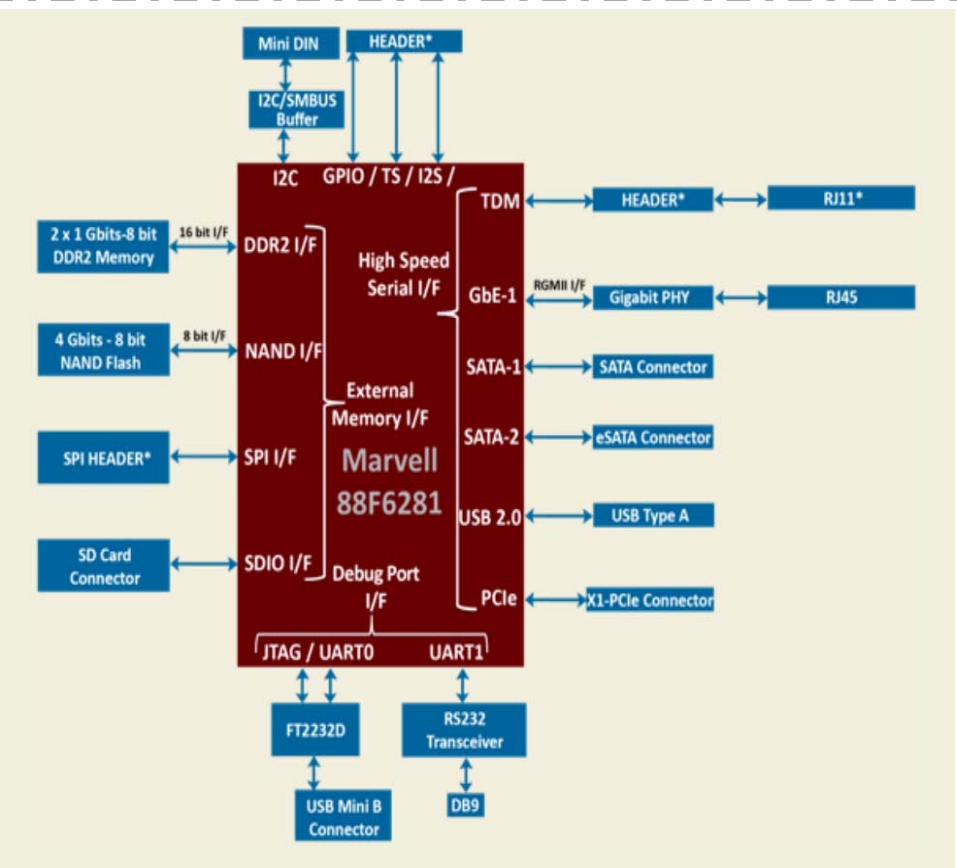
PCB Layer Stackup



PCB Mechanical Details

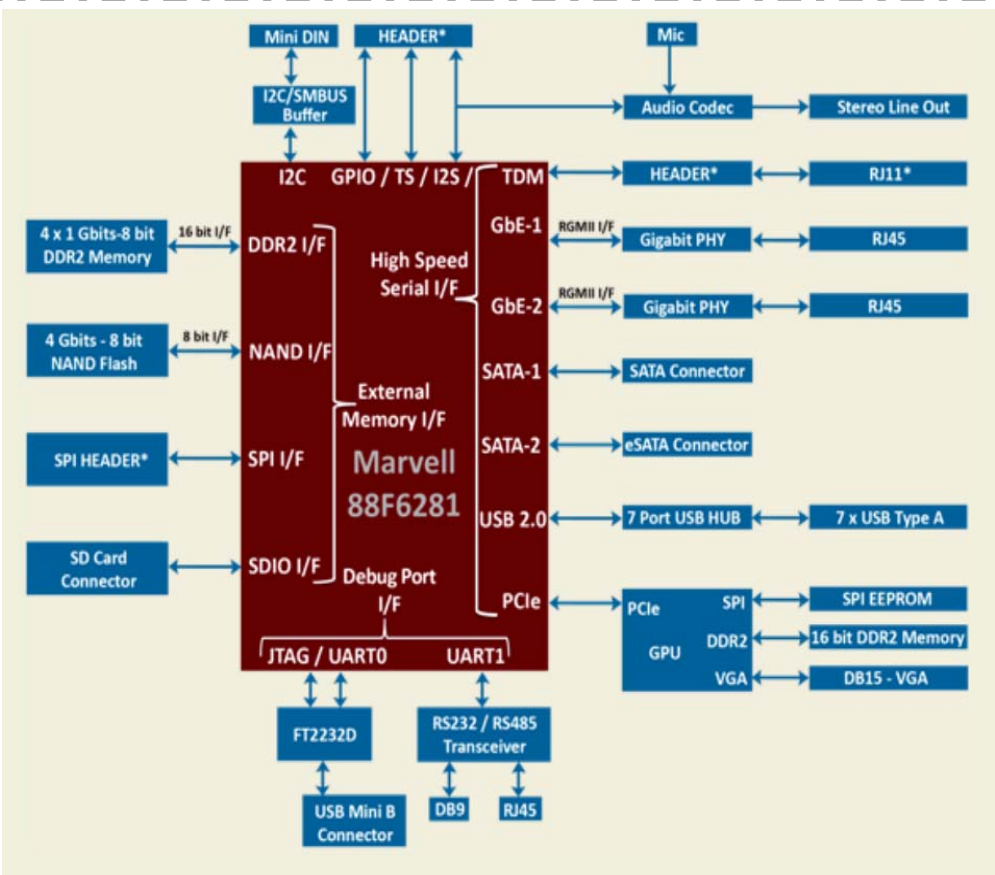
- 1. PCB SIZE: 8.82" x 6.25" x 0.063"
- 2. PCB MATERIAL: FR4
- 3. NUMBER OF LAYERS: 4
- 4. IMPEDANCE CONTROL: YES

System Block Diagram



Note: * Indicates Optional

OpenRD Base System



Note: * Indicates Optional

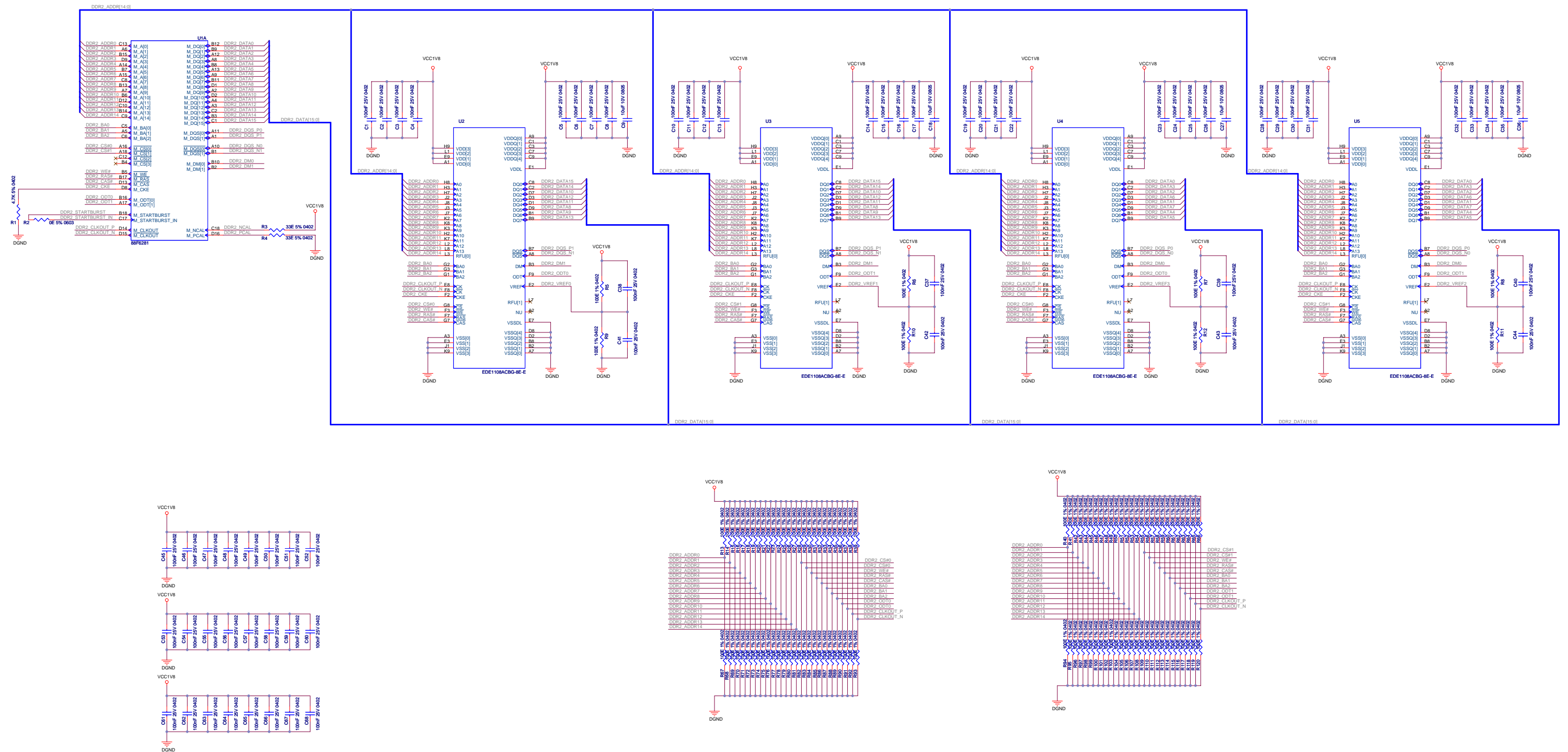
OpenRD Client System

Major Revision History




REV.	DESCRIPTION	DATE
1.0	PROTO_1 RELEASE TO FAB	12DEC2008
2.0	- Base System: Added on board SATA connector 88F6281 RAM increased to 512MB Added current measurement header - Client System: Full duplex Modbus support on RS485 (RJ45) connector. - Added SD Card detect functionality - Added software selection for SD / UART1 - Modified FTDI JTAG Interface	21FEB2009
2.1	CON12 Mfg. Part# corrected to TZS316PVSBG from SJ-3524-SMT.	23FEB2009
2.2	BOM Change: NAND Flash Hynix #HY27UF084G2M-TPCB added as alternative part of Samsung #K9F4G08U0A-P-TSOP1	10MAR2009
2.3	BOM Change: R238=10M and R125,138,167,183=22E	02APR2009
2.4	BOM Change: Power adaptor description changed to support universal AC Input.	10APR2009

Project OpenRD-Base / OpenRD-Client		Designed for Marvell by elfinchips	
Title Front Page			
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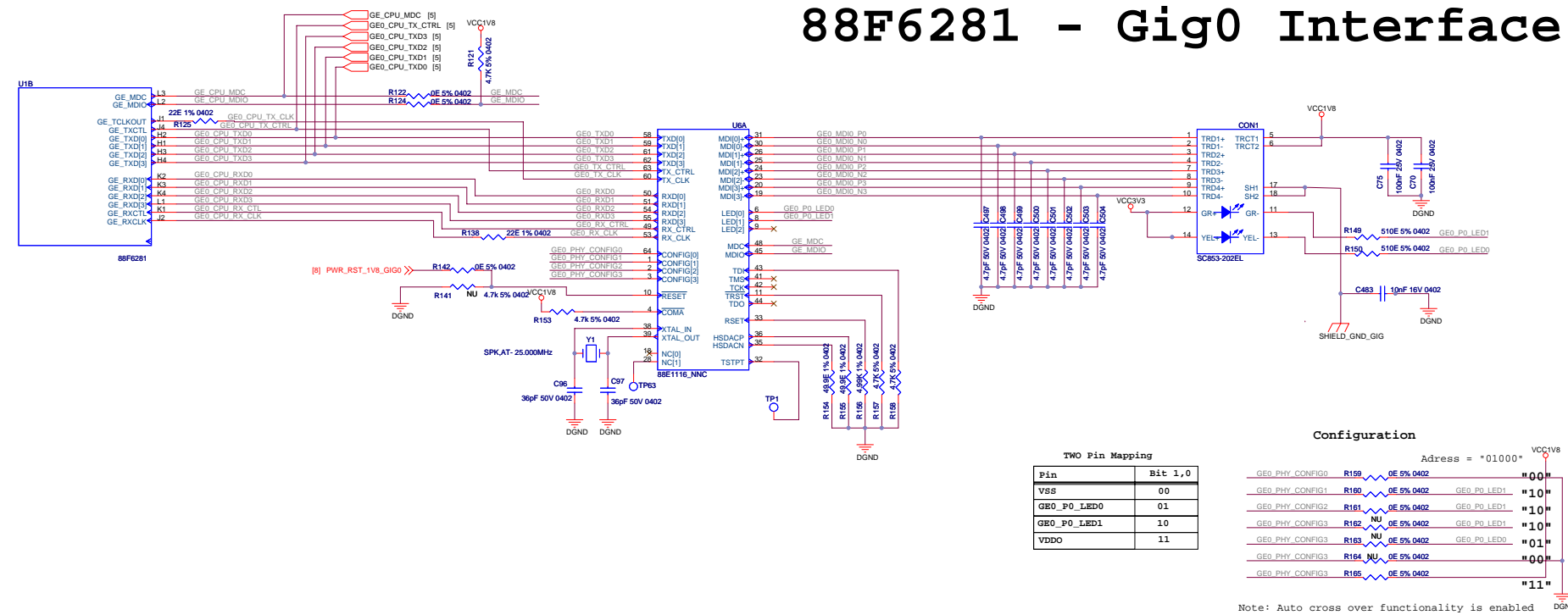
88F6281 - DDR2 SDRAM Interface



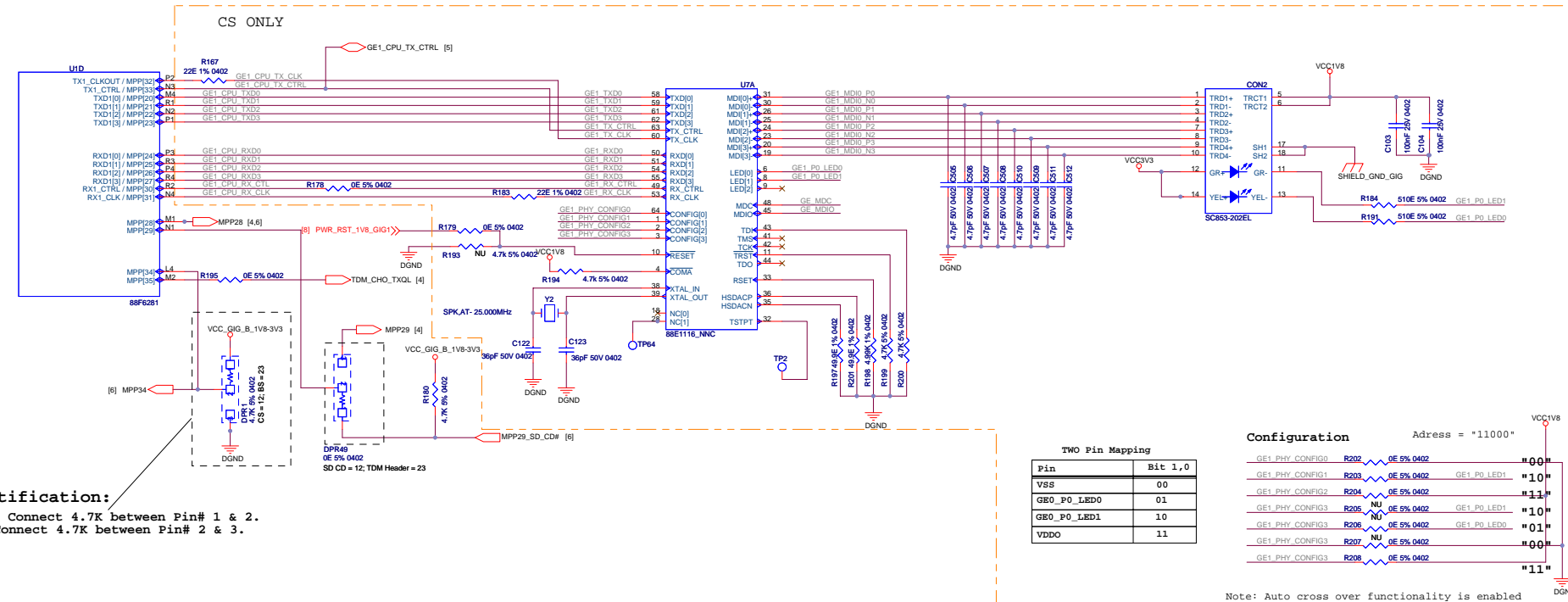
Distribute these capacitors through out DDR2 interfaces.
Place these capacitors near to plane splits to provide return path of to the signals

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Title 88F6281 - DDR2 SDRAM I/F		  	
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88F6281 - Gig0 Interface





88F6281 - Gig1 Interface

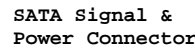
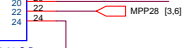


System Identification:

Client System - Connect 4.7K between Pin# 1 & 2.
Base System - Connect 4.7K between Pin# 2 & 3.

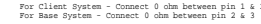
Project		Designed for Marvell by eInfochips	
OpenRD-Base / OpenRD-Client		  The Solutions People	
Title			
88F6281 - Gigabit Ethernet			
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For Client System - Connect 0 ohm between pin 1 & 2
For Base System - Connect 0 ohm between pin 2 & 3

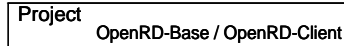
[illegible]

CS ONLY

BS ONLY



For Client System - Connect 0 ohm between pin 1 & 2
For Base System - Connect 0 ohm between pin 2 & 3



Designed for Marvell by elnfochips

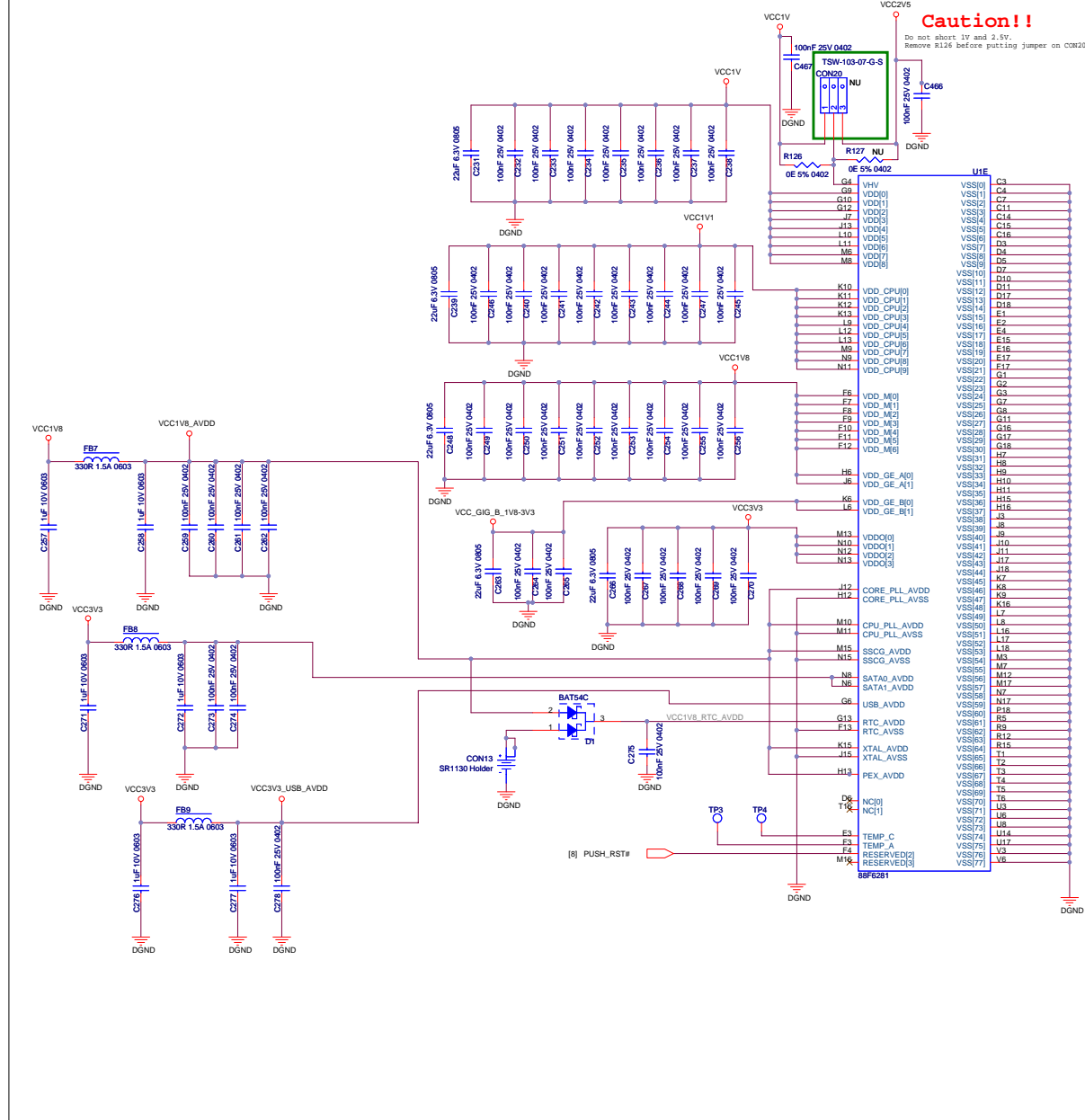
Title	 	 The Solutions People
88E6281 SATA USB PCIe 13S 1/E		

Size	Document Number	Rev
D	16-00050-02	2.4

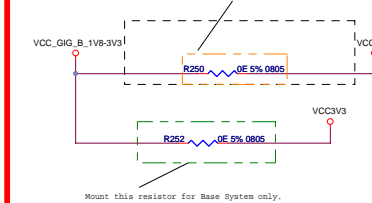
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88F6281 - Power Supply Pins

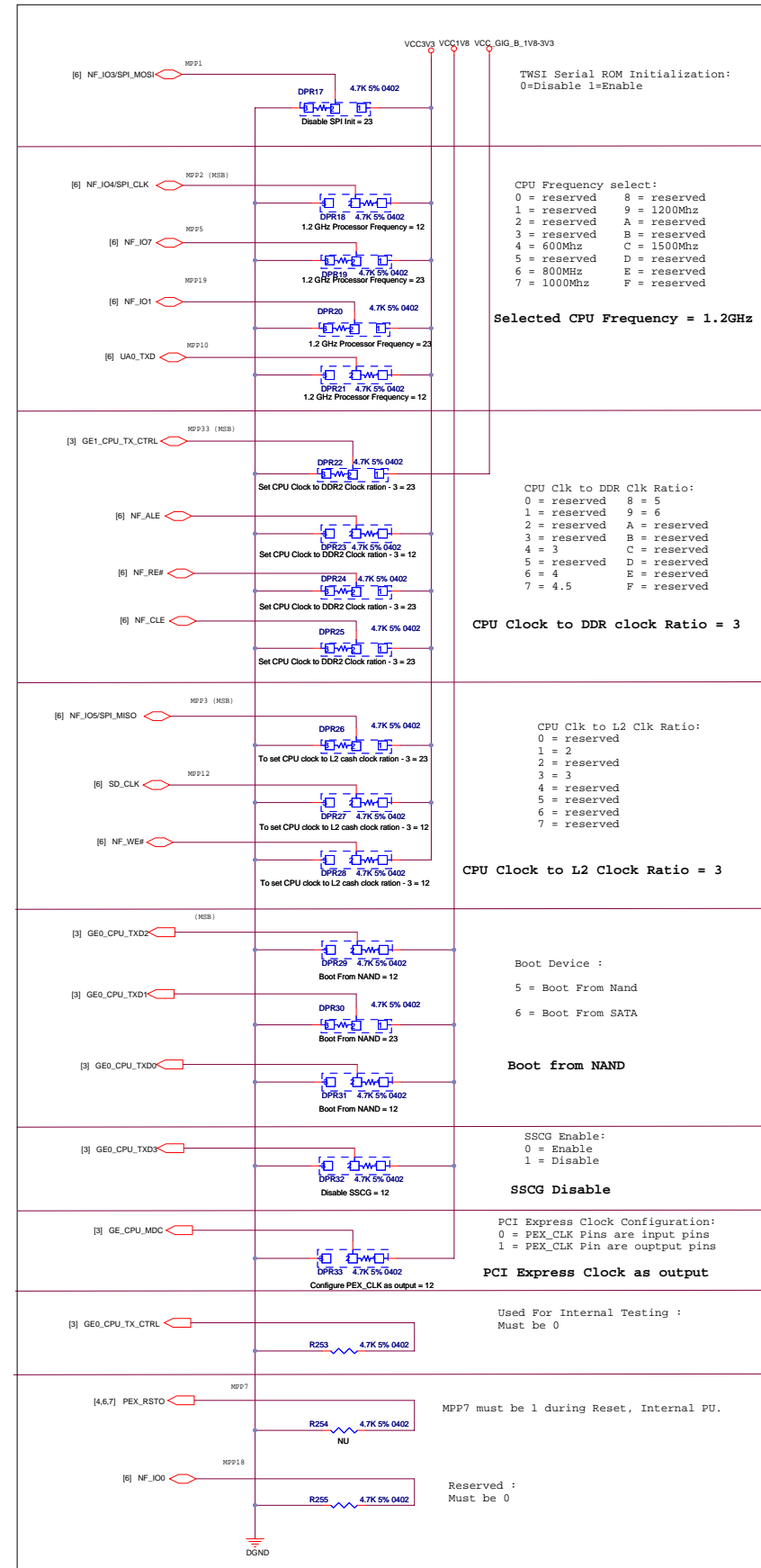


Caution!! Mount these resistors for Client System only.



Mount this resistor for Base System only.

88F6281 - Boot Strapping Options

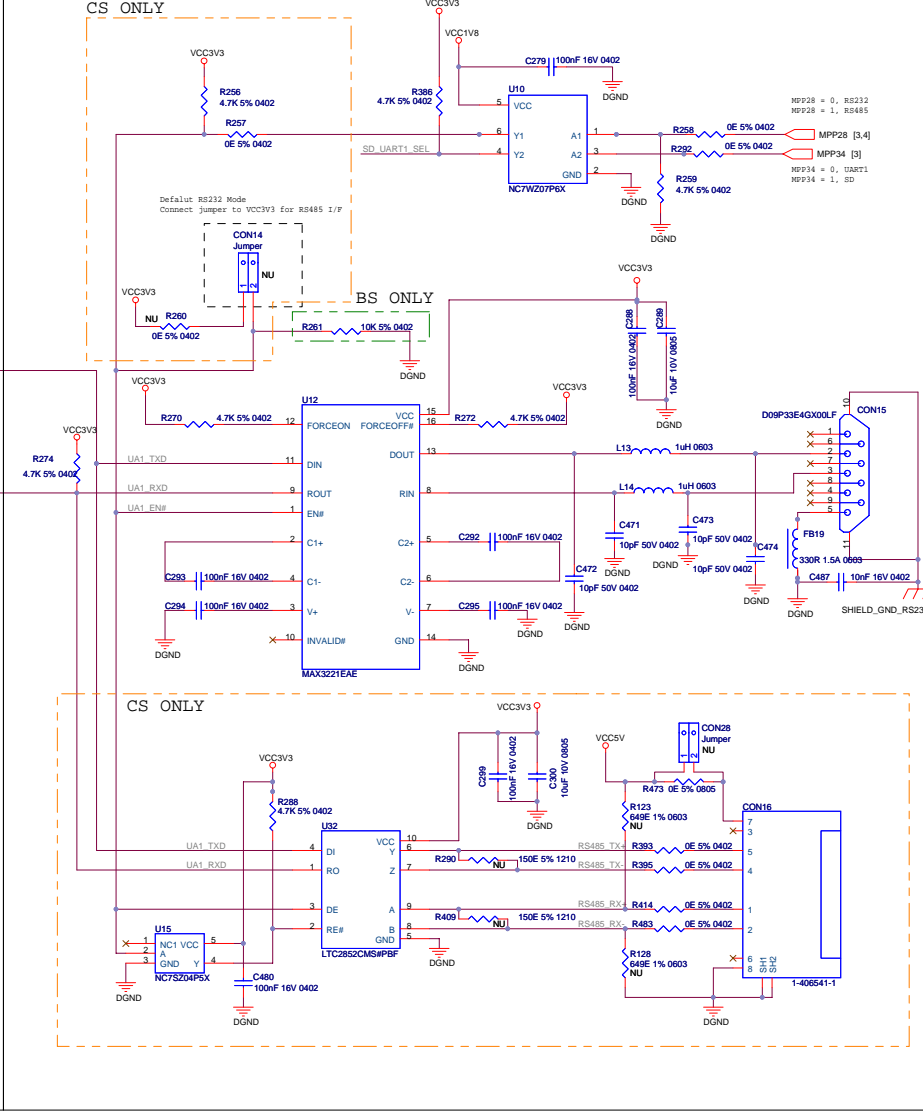
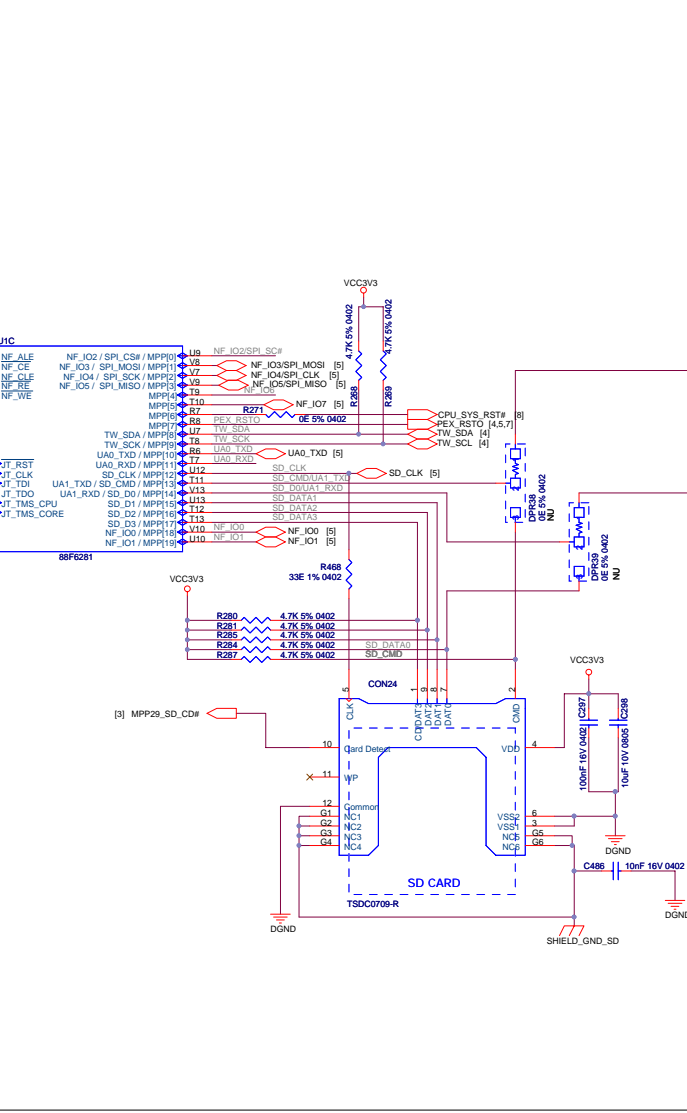
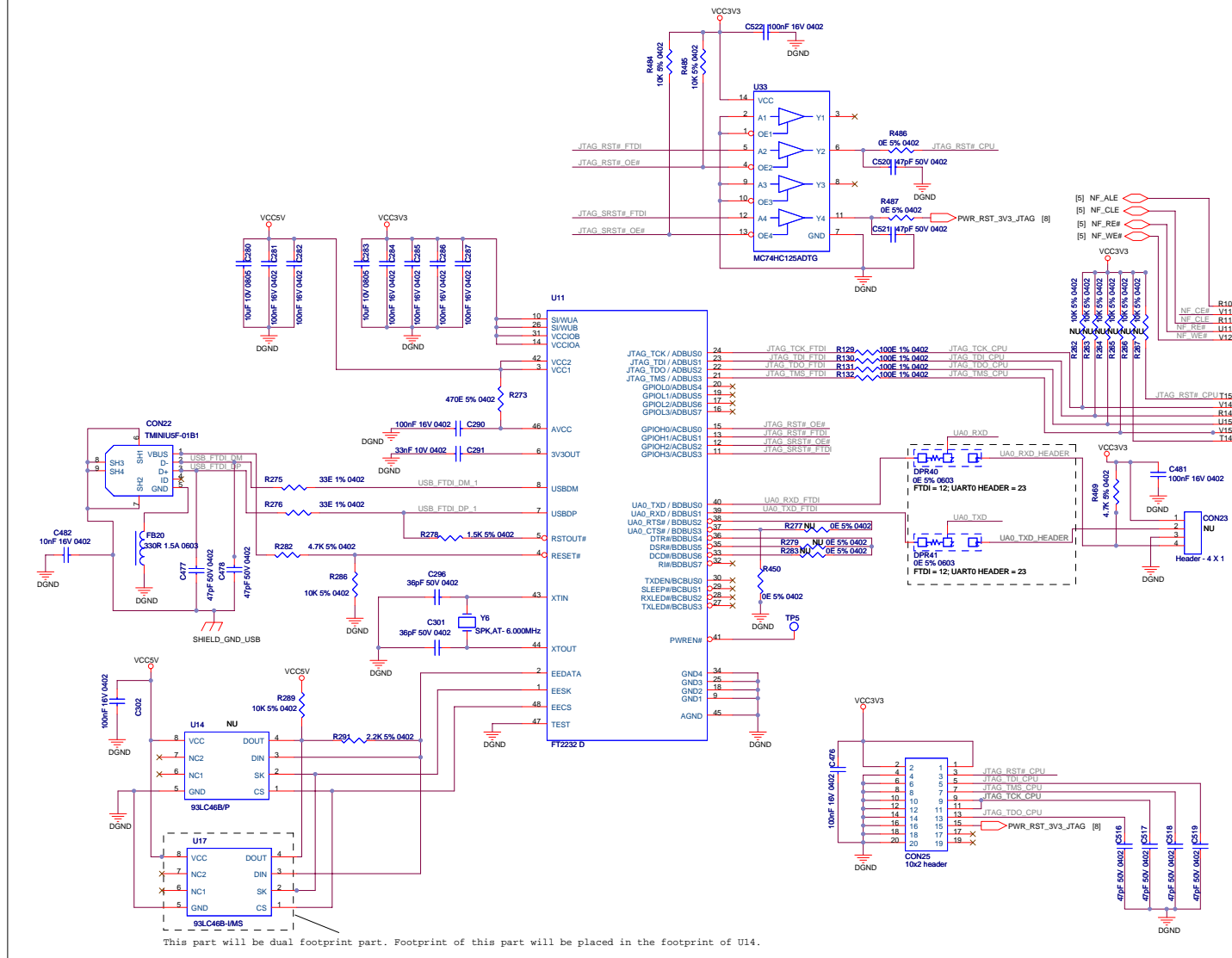


Project OpenRD-Base / OpenRD-Client		Designed for Marvell by infochips	
Title 88F6281 - Power pins, MPP & Boot strap		MARVELL® infochips The Solutions People	
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88F6281 - JTAG & UART Interface

SDCARD Interface

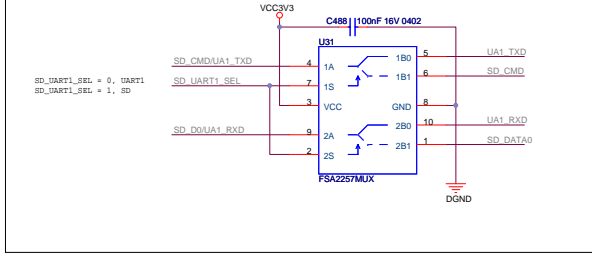
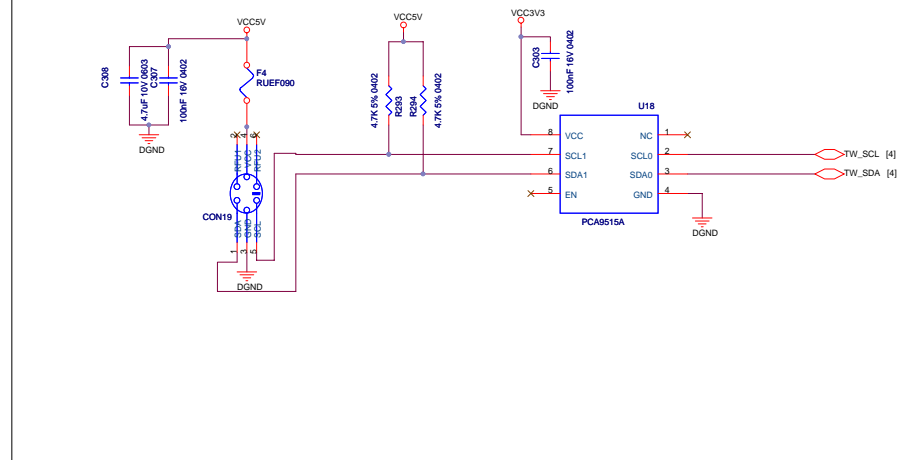
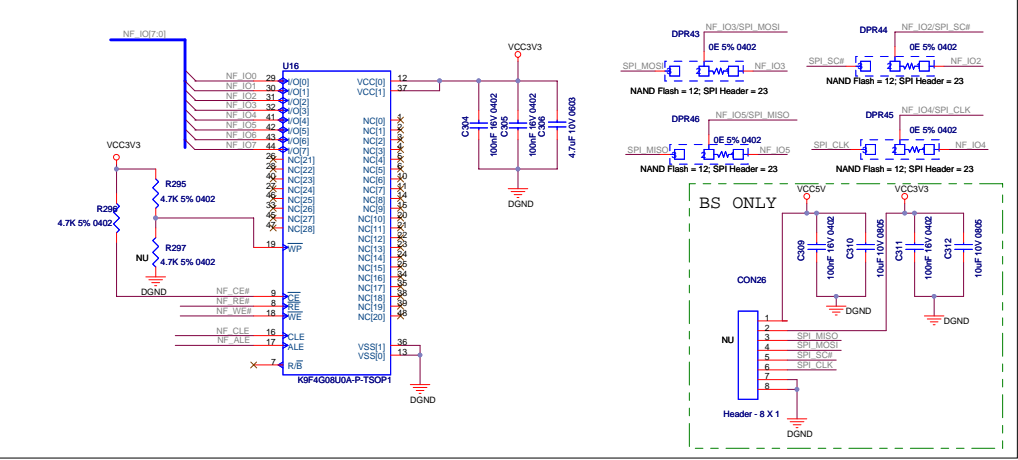
RS232 & RS485 Interface



NAND Flash & SPI Header

SMBUS Buffer Interface

SD/UART1 Selection



Local Power Supply Generation

External Power Input

Power On Reset

The schematic diagram illustrates a Power On Reset (POR) circuit. It features two comparators, U29 (NCP303L5N09T1G) and U30 (NCTW207P6X), which monitor various power rails and generate reset signals.

U29 (NCP303L5N09T1G) Connections:

- NC: VCC1V (via R428, 0E 5% 0603)
- INPUT: NU (via R434, 0E 5% 0603)
- ROUT: VCC3V3 (via R431, 10K 5% 0402)
- CD: GND (via C461, 100nF 20V 0402)
- 5: GND (via 100nF 20V 0402)

U30 (NCTW207P6X) Connections:

- VCC: VCC3V3 (via R437, 10K 5% 0402)
- A1: VCC3V3 (via R478, 0E 5% 0402)
- A2: GND
- Y1: VCC3V3
- Y2: GND

Reset Signals and Pull-up Resistors:

- PWR_RST_3V3_JTAG [6]: VCC3V3 (via R427, 0E 5% 0402)
- PWR_RST_1V8_GIG0 [3]: VCC1V8 (via R439, 10K 5% 0402)
- PWR_RST_1V8_GIG1 [3]: VCC1V8 (via R433, 0E 5% 0402)
- PWR_RST_3V3_USB [4]: VCC3V3 (via R438, 0E 5% 0402)
- PWR_RST_3V3_AUDIO_CODEC [4]: VCC3V3 (via R439, 0E 5% 0402)
- PWR_RST_3V3_PEMRST [4.7]: VCC3V3 (via R449, 0E 5% 0402)
- PWR_RST_3V3_SYSTRST [4]: VCC3V3 (via R426, 0E 5% 0402)



Other Components and Connections:

- U29 Input:** VCC1V (via R428, 0E 5% 0603), NU (via R434, 0E 5% 0603), GND (via C461, 100nF 20V 0402).
- U30 Input:** VCC3V3 (via R437, 10K 5% 0402), A1 (via R478, 0E 5% 0402), A2 (GND), Y1 (VCC3V3), Y2 (GND).
- Reset Signals:** PWR_RST_3V3_JTAG [6], PWR_RST_1V8_GIG0 [3], PWR_RST_1V8_GIG1 [3], PWR_RST_3V3_USB [4], PWR_RST_3V3_AUDIO_CODEC [4], PWR_RST_3V3_PEMRST [4.7], PWR_RST_3V3_SYSTRST [4].
- Push-Buttons:** [5] PUSH_RST# (via R241, 4.7K 5% 0402), SW3 (via R477, 0E 5% 0402), SW2 (via R436, 10E 1% 0603).
- Capacitors:** C465 (1uF 10V 0603), C463 (1uF 10V 0603).
- Resistors:** R428 (0E 5% 0603), R434 (0E 5% 0603), R431 (10K 5% 0402), R437 (10K 5% 0402), R438 (0E 5% 0402), R439 (0E 5% 0402), R449 (0E 5% 0402), R426 (0E 5% 0402), R478 (0E 5% 0402), R477 (0E 5% 0402), R436 (10E 1% 0603).

The diagram shows four test points, MT_PTH1 through MT_PTH4, each connected to a common ground (DGND) via a component. MT_PTH1 and MT_PTH2 are connected to C513 (10nF) and C514 (16V 0402) respectively. MT_PTH3 and MT_PTH4 are connected to C515 (10nF) and R415 (1M 5% 0402) respectively. All components are connected to a common ground symbol labeled DGND.

MT_NPTH1 MT_NPTH2 MT_NPTH3 MT_NPTH4

Power Supply Test Points

Project OpenRD-Base / OpenRD-Client		Designed for Marvell by elfinfochips	
Title POWER SUPPLY & RESET		  The Solutions People	
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Front Plate Accessories

CS ONLY

DM8
Front Plate

DM9
Front Plate Sticker

DM10
Screw Size 3mm x 10mm

DM11
Screw Size 3mm x 10mm

DM12
Screw Size 3mm x 10mm

DM13
Screw Size 3mm x 10mm

Back Plate Accessories

CS ONLY

DM14
Back Plate

DM15
Back Plate Sticker

DM16
Screw Size 3mm x 10mm

DM18
Screw Size 3mm x 10mm

DM19
Screw Size 3mm x 10mm

DM20
Screw Size 3mm x 10mm

Additional Accessories

CS ONLY

DM5
Client System Enclosure

DM6
12V 3A DC Power Adaptor

DM4
2.5" Harddisk NU

DM7
1.5V SR1130 Battery

DM2
Ethernet cable, CAT6

DM3
Ethernet cable, CAT6

DM9
Jumper NU

DM1
USB Cable - Mini B to Type A

DM49
System Software DVD

DM33
12V 2A DC Power Adaptor

DM17
17-00050-02-CS

DM50
Quick Start Guide

DM51
Installer and User Guide

DM52
17-00050-02-BS

BS ONLY

Board Stud Mounting Accessories

BS ONLY

DM33
Stud 8mm o.d. x 3mm i.d. x25.4mm Height

DM34
Stud 8mm o.d. x 3mm i.d. x25.4mm Height

DM35
Stud 8mm o.d. x 3mm i.d. x25.4mm Height

DM36
Stud 8mm o.d. x 3mm i.d. x25.4mm Height

DM37
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM39
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM38
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM40
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM42
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM44
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM41
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM43
Spacer Size 8mm o.d. & 4mm i.d. 0.5mm Height

DM45
Screw Size 3mm x 10mm

DM46
Screw Size 3mm x 10mm

DM47
Screw Size 3mm x 10mm

DM48
Screw Size 3mm x 10mm

SATA Hard Disk Mounting Accessories

DM21
Screw Size 3mm x 10mm

DM25
Spacer 8mm o.d. & 4mm i.d. 0.5mm Height

DM29
Spacer 8mm o.d. & 4mm i.d. & 3mm Height

DM22
Screw Size 3mm x 10mm

DM27
Spacer 8mm o.d. & 4mm i.d. 0.5mm Height

DM31
Spacer 8mm o.d. & 4mm i.d. & 3mm Height

DM23
Screw Size 3mm x 10mm

DM26
Spacer 8mm o.d. & 4mm i.d. 0.5mm Height


DM30
Spacer 8mm o.d. & 4mm i.d. & 3mm Height

DM24
Screw Size 3mm x 10mm

DM28
Spacer 8mm o.d. & 4mm i.d. 0.5mm Height

DM32
Spacer 8mm o.d. & 4mm i.d. & 3mm Height

Note: 0.5mm height spacer should be mounted on the TOP side of the PCB and 3mm height spacer should be mounted on the Bottom side of the PCB.

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Title DUMMY PARTS			
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