CompactPCI 9056RDK-860 Hardware Reference Manual

CompactPCI 9056RDK-860 Hardware Reference Manual

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PREFACE

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ABOUT THIS MANUAL

This document describes the PLX CompactPCI 9056RDK-860 Rapid Development Kit from a hardware perspective. It contains description of all major functional circuit blocks on board and also is a reference for the creation of software for this product. This manual also includes the complete schematics and bill of materials.

DOCUMENT INFORMATION

UPDATE HISTORY

Date	Version	Comments
April 2001	0.50	Yellow Book Release
March 2003	1.0	First Production Release. Correct EEPROM tables
October 2004	1.1	Update EEPROM table, BOM and Schematics

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1. GENERAL INFORMATION

The PLX CompactPCI 9056RDK-860 Rapid Development Kit (RDK) provides a comprehensive PCI 9056 design and development environment for 32-bit, 66MHz PICMG 2.0 R3.0 CompactPCI-compliant adapters based on the Motorola® PowerQUICC® processor family. The RDK supports PICMG 2.1 R2.0 CompactPCI Hot Swap and provides reusable hardware and software components to shorten the design cycles of both hardware and software based on the PCI 9056 and MPC850/860 PowerQUICC combination. The CompactPCI 9056RDK-860's software and hardware registers are backward-compatible with PLX's CompactPCI 9054RDK-860, allowing designers to migrate their existing 32-bit, 33MHz PCI bus PowerQUICC designs into 32-bit, 66MHz PCI solutions. The RDK includes the PLX Software Development Kit (PCI SDK) to provide a comprehensive host-side and local-side (embedded) software development platform. The PCI SDK is also compatible with Motorola's MPC850/860 PowerQUICC software development tools.

1.1 Features

The CompactPCI 9056RDK-860 Rapid Development Kit (RDK) board contains the following features:

- PICMG 2.0 CompactPCI specification R3.0 compliant interface with PICMG 2.1 CompactPCI Hot Swap R2.0 support
- CompactPCI 6U form factor
- Direct connection between the PLX PCI 9056 and the Motorola PowerQUICC MPC860T
- 32-bit PCI and local buses
- Max 66MHz on the PCI bus and max 66MHz on the local bus
- Adjustable local bus speed by easily adding an optional oscillator
- PCI 9056 respond mode selection jumper to determine chip behavior during PCI initialization
- Soldered 64 Mbyte SDRAM memory on the local bus
- 128K x 32 Synchronous-Burst SRAM with CPLD based memory controller to demonstrate continuous bursts
- Socketed 512 Kbyte burst flash plus soldered 8MBbyte bulk flash memory on the local bus
- 4 Kbyte Serial EEPROM connected to PCI 9056 for configuration purposes
- One 10/100 Mb Ethernet port using MPC860T internal MAC with status LEDs
- Two external serial RS-232 ports on the front panel using two of the MPC860 internal Serial Communication Controllers
- On board reset switch
- PCI 9056 JTAG port (6-pin) connector
- MPC860 development port (BDM) (2x5 pin) connector
- Nine debug LEDs
- Prototype area with 0.100” through-hole grid for full access to MPC860 I/O’s
- POM (PLX Option Module) interface connector for MPC860 peripheral devices
- 2x10 logic analyzer headers on all local address, local data and local control signals
- Compatible with Motorola MPC860 PowerQUICC processor software development tools
- Factory configured in peripheral mode. User-configurable for host mode.

2. SYSTEM ARCHITECTURE

The CompactPCI 9056RDK-860 board is comprised of the PCI 9056 interface chip, the Motorola MPC860T, Flash memory, SDRAM memory, two serial RS-232 ports, 10/100 Ethernet port, POM interface connector, and prototype area.

Because the MPC860 has a built-in memory controller, both the MPC860 and PCI 9056 perform their read and write transactions to all the devices on the board through the Local bus using this memory controller. When the MPC860 requires access to devices on the PCI Bus, the PCI 9056 serves as an interface chip between the local bus and the PCI bus. By the same token, any master device residing on the PCI bus will use the PCI 9056 as the interface chip when it requires access to the local bus.

The local bus arbiter is built-in to the MPC860. In this case, when the PCI 9056 needs to request the local bus, it asserts its BR# signal and receives BG# from the MPC860.

The POM interface connector and prototype area allow the designer to incorporate custom circuitry interfacing to the local bus on the board.

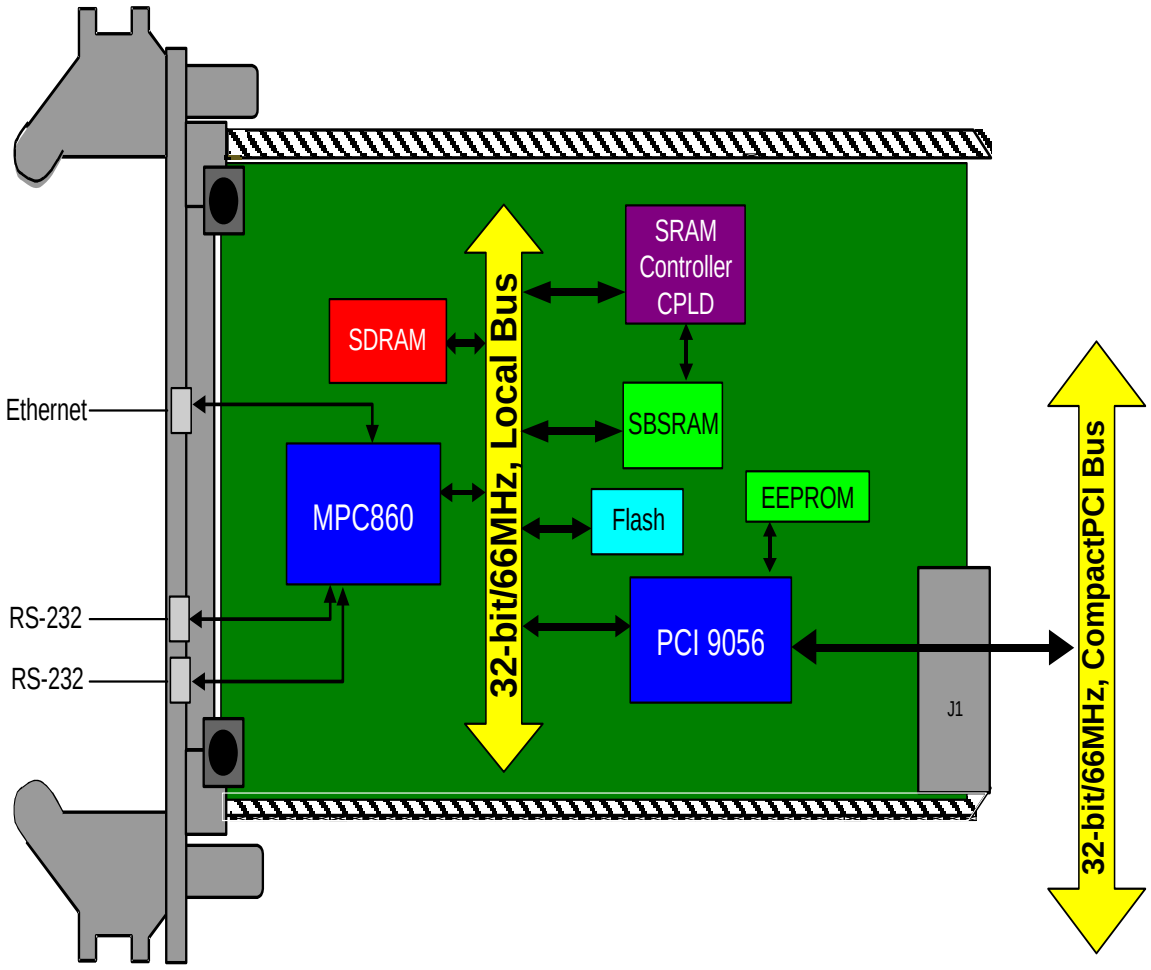


Figure 2-1. CompactPCI 9056RDK-860 System Architecture

3. HARDWARE ARCHITECTURE

This section provides a detailed description of each functional circuit feature in the CompactPCI 9056RDK-860.

3.1 Hardware Memory Map

The following is the memory map of the CompactPCI 9056RDK-860 board.

Table 3-1. CompactPCI 9056RDK-860 Memory Map

Address Range	Device	Comments
FFFF FFFF FFF8 0000	Unused	
FFF7 FFFF FFF0 0000	MPC860T Boot Flash Memory 512Kbyte	8-bit wide
FFEF FFFF F080 0000	Unused	
F07F FFFF F000 0000	Secondary Flash Memory 8Mbyte	8- or 16-bit wide
EFFF FFFF 6000 0000	Unused	
5FFF FFFF 5000 0000	PCI 9056 Direct Master Memory Mapped	
4FFF FFFF 5000 0000	PCI 9056 Direct Master I/O Mapped	
3FFF FFFF 3000 0000	PCI 9056 Registers	32-bit wide
2FFF FFFF 2000 0000	SBSRAM 512KByte	32-bit wide Partial decode
1FFF FFFF 0400 0000	Unused	
03FF FFFF 0000 0000	SDRAM 64Mbyte	32-bit wide

3.2 Microprocessor

The local microprocessor is the Motorola MPC860T PowerQUICC (U2). The MPC860T has a PowerPC RISC core, four (4) Serial Communication Controllers (SCC), one (1) 10/100 Mb Ethernet controller, 4-Kbyte I-cache, 4-Kbyte D-cache and an external 32-bit non-multiplexed address and data bus (M bus). This device is packaged in a 357-pin BGA package.

3.3 Motorola BDM Connector

The Motorola BDM Connector (J1) facilitates on-chip emulation using third party BDM development tools. This connector is a 10-pin dual-in-line header.

3.4 Local Bus Clock

A soldered 66MHz (U20) oscillator provides the clock to the local bus of MPC860 processor and the PCI 9056.

The local bus speed is adjustable by adding an oscillator into the oscillator socket (U22), removing resistor R84 and installing R89.

3.5 External Clock Buffer

An external clock buffer (U21) is used to generate more clock sources for other chips on the local bus of the circuit board.

3.6 Power Supply Voltage

All devices on the CompactPCI 9056RDK-860 are 3.3 V devices, except the PCI 9056, itself, which is 3.3 V I/O and 2.5V core.

3.7 Serial EEPROM

A socketed 4 Kbyte serial EEPROM (U19) is used in this RDK. It is connected directly to the PCI 9056 and provides the configuration data to initialize the PCI 9056 after the system reset. There are 100 bytes of pre-programmed configuration data in the serial EEPROM, which include device and functional information for Plug-and-Play (PnP), PCI memory resource allocation, and initial values of internal registers.

3.7.1 Serial EEPROM Contents

Table 3-2. Long Serial EEPROM Load Registers

Serial EEPROM Offset	Serial EEPROM Hex Value	Description	Register Bits Affected
0h	56C2	Device ID	PCIIDR[31:16]
2h	10B5	Vendor ID	PCIIDR[15:0]
4h	0680	Class Code	PCICCR[23:8]
6h	00BA	Class Code, Revision of the PCI 9056	PCICCR[7:0] / PCIREV[7:0]
8h	0000	Maximum Latency, Minimum Grant	PCIMLR[7:0] / PCIMGR[7:0]
Ah	0100	Interrupt Pin, Interrupt Line Routing	PCIIPR[7:0] / PCIILR[7:0]
Ch	0000	MSW of Mailbox 0 (User Defined)	MBOX0[31:16]
Eh	0000	LSW of Mailbox 0 (User Defined)	MBOX0[15:0]
10h	0000	MSW of Mailbox 1 (User Defined)	MBOX1[31:16]
12h	0000	LSW of Mailbox 1 (User Defined)	MBOX1[15:0]
14h	FF00	MSW of Range for PCI-to-Local Address Space 0	LAS0RR[31:16]
16h	0000	LSW of Range for PCI-to-Local Address Space 0	LAS0RR[15:0]
18h	0000	MSW of Local Base Address (Re-map) for PCI-to-Local Address Space 0	LAS0BA[31:16]
1Ah	0001	LSW of Local Base Address (Re-map) for PCI-to-Local Address Space 0	LAS0BA[15:0]
1Ch	0100	MSW of Mode/DMA Arbitration Register	MARBR[31:16]
1Eh	0000	LSW of Mode/DMA Arbitration Register	MARBR[15:0]
20h	2030	Local Miscellaneous Control Register 2 / Serial EEPROM Write-Protected Address Boundary	LMISC2[7:0] / PROT_AREA[7:0]
22h	D524	Local Miscellaneous Control Register 1 / Processor/Local Bus Big/Little Endian Descriptor Register	LMISC1 [7:0] / BIGEND [7:0]
24h	0000	MSW of Range for PCI-to-Local Expansion ROM	EROMRR[31:16]
26h	0000	LSW of Range for PCI-to-Local Expansion ROM	EROMRR[15:0]
28h	0000	MSW of Local Base Address (Re-map) for PCI-to-Local Expansion ROM	EROMBA[31:16]
2Ah	0000	LSW of Local Base Address (Re-map) for PCI-to-Local Expansion ROM	EROMBA[15:0]
2Ch	4303	MSW of Bus Region Descriptors for PCI-to-Local Accesses	LBRD0[31:16]
2Eh	0043	LSW of Bus Region Descriptors for PCI-to-Local Accesses	LBRD0[15:0]
30h	FF00	MSW of Range for Direct Master-to-PCI	DMRR[31:16]
32h	0000	LSW of Range for Direct Master-to-PCI	DMRR[15:0]
34h	5000	MSW of Local Base Address for Direct Master-to-PCI Memory	DMLBAM[31:16]
36h	0000	LSW of Local Base Address for Direct Master-to-PCI Memory	DMLBAM[15:0]
38h	4000	MSW of Processor/Local Bus Address for Direct Master-to-PCI I/O Configuration	DMLBAI[31:16]
3Ah	0000	LSW of Processor/Local Bus Address for Direct Master-to-PCI I/O Configuration	DMLBAI[15:0]
3Ch	0000	MSW of PCI Base Address (Re-map) for Direct Master-to-PCI	DMPBAM[31:16]
3Eh	0003	LSW of Processor/Local Bus Address for Direct Master-to-PCI I/O Configuration	DMPBAM[15:0]
40h	0000	MSW of PCI Configuration Address Register for Direct Master-to-PCI I/O Configuration	DMCRGA[31:16]
42h	0000	LSW of PCI Configuration Address Register for Direct Master-to-PCI I/O Configuration	DMCFGA[15:0]

Table 3-3. Extra Long Serial EEPROM Load Registers

Serial EEPROM Offset	Serial EEPROM Hex Value	Description	Register Bits Affected
44h	9056	Subsystem ID	PCISID[15:0]
46h	10B5	Subsystem Vendor ID	PCISVID[15:0]
48h	FF00	MSW of Range for PCI-to-Local Address Space 1 (1 MB)	LAS1RR[31:16]
4Ah	0000	LSW of Range for PCI-to-Local Address Space 1 (1 MB)	LAS1RR[15:0]
4Ch	2000	MSW of Local Base Address (Re-map) for PCI-to-Local Address Space 1	LAS1BA[31:16]
4Eh	0001	LSW of Local Base Address (Re-map) for PCI-to-Local Address Space 1	LAS1BA[15:0]
50h	0000	MSW of Bus Region Descriptors (Space 1) for PCI-to-Local Accesses	LBRD1[31:16]
52h	01C3	LSW of Bus Region Descriptors (Space 1) for PCI-to-Local Accesses	LBRD1[15:0]
54h	0000	Hot Swap Control/Status Register	***Reserved***
56h	4C06	Hot Swap Control/Status Register / Hot Swap Next Capability Pointer	HS_NEXT[7:0] / HS_CNTL[7:0]
58h	0000	Reserved	***Reserved***
5Ah	0000	PCI Arbiter Control	PCIARB[15:4] / PCIARB[3:0]
5Ch	7A02	Power Management Capabilities	PMC[15:9,2:0]
5Eh	4801	Power Management Next Capability Pointer / Power Management Capability ID (the LSB is reserved)	PMNEXT[7:0] / PMCAPID[7:0]
60h	0000	Power Management Data / PMCSR Bridge Support Extensions (the LSB is reserved)	PMDATA[7:0]/ PMCSR_BSE[7:0]
62h	0000	Power Management Control/Status (Bits 15, 7:2, and 1:0 are reserved)	PMCSR[15:0]

3.8 Flash Memory

There are two Flash memories on board; one is 512Kbyte (512Kx8) (U10) and the other is 8Mbyte (U9) (8Mx8, or 4Mx16).

3.8.1 512Kbyte Flash Memory

The 512Kbyte Flash memory is a socketed 120ns device. This memory contains the boot up code for the MPC860. It is both readable and writeable by any bus master device on the board. Note that the MPC860's memory controller must be programmed to 8-bit mode before attempting to access this device.

This Flash memory is also read-burstable.

3.8.2 8 MB Flash Memory

An 8 MB Flash memory is also available on the board, which can be configured in either 8-bit mode or 16-bit mode (please see Table 3-2 for configuration detail). The RDK board comes with the 8-bit mode configuration.

Table 3-4. 8MB Flash Memory Configuration

	R18	R161
8-bit Mode	Installed	Not installed
16-bit Mode	Not installed	Installed

3.8.3 Boot-up Flash Memory Selection

A jumper (J8) on the board is used to select which Flash memory will be used by the MPC860 during boot-up.

Table 3-5. Flash Memory Selection for Boot-up

Boot From 512KB	Boot From 8MB
Short J8 pin 1 and 3 (default)	Short J8 pin 3 and 4

Note: Both flash memories are accessible at all times. They are slower than the SDRAM memory on a clock-cycle basis. For this reason, if performance is important, flash code should be copied into SDRAM, and executed from there.

3.9 SDRAM

The SDRAMs used on the CompactPCI 9056RDK-860 are two 16Mb x 16 (U3, U4).

The SDRAM is 4-Lword-burstable by any bus master. Bursts are interrupted by either the crossing of a row boundary (a new RAS~ and corresponding row address must be generated), or by a refresh timeout (a refresh cycle must be performed). Both of these events are transparent to the bus master, except for the obvious delay in access time.

A built-in CAS-before-RAS refresh timer in the MPC860 is used to refresh the SDRAM array. A refresh occurs every 7.81 μs in order to refresh 8,192 rows every 64 ms.

3.10 SDRAM Memory Controller

The 64 Mbyte SDRAM space is controlled by the MPC860's UPMA (user-programmable machine A). GPL_A0 is connected to the SDRAM AP by a multiplexer. GPLA1# is connected to the SDRAM WE#, GPL_A2# to SDRAM RAS#, and GPL_A3# to the SDRAM CAS#. BS_[0:3]# are connected to SDRAM DQM[0:3] and act as byte enables.

The GPL_A5# controls the address multiplexers (U5, U6, U7). The multiplexers are used to multiplex the row and column addresses as CAS# = LA[21:29] and RAS# = LA[9:20]. LA[6:7] are used as the bank select signals.

3.11 Synchronous SRAM

The synchronous 128K x 36 SRAM is included to showcase the PCI 9056 extended bursting feature. It can burst continuously for both read and write operations.

3.12 Synchronous SRAM Controller

The synchronous SRAM controller is implemented in a CPLD (U11). The logic for the memory controller is implemented in the Verilog. Please see Section 4 for the CPLD source code.

3.13 UART

The two serial ports (P1, P2) for the CompactPCI 9056RDK-860 are implemented using standard RS-232C DB-9 connectors. The DB-9 connectors provide the serial connections to the MPC860 internal UARTs through external Maxim RS-232 voltage converters (U32, U33).

3.14 Ethernet

There is a 10/100 Mb Ethernet connector (P3) on the RDK board. It uses the MPC860T built-in 10/100 Mbit Ethernet MAC. The Intel LXT972 is used as a PHY transceiver chip (U27). The LXT972 supports full-duplex operation at 10 Mbps or 100 Mbps that is selected by auto-negotiation, parallel detection, or manual control. The output interface is an RJ-45 connector.

3.15 Debug/Status LEDs

There are nine (9) LEDs on the CompactPCI 9056RDK-860 board for Hot Swap and debugging purposes. LED D12 is controlled by the PCI 9056's USERO pin. When this pin is low, the LED D12 is lit. When this pin is high, D12 is off. LED D13 is controlled by the MPC860's FRZ pin. When this pin is high, D13 is lit. The blue LED D2 shows the Hot Swap status of the PCI 9056. LEDs D6-11 show the status conditions of the LXT972 Fast Ethernet transceiver.

3.16 PLX Option Module Connector

The PLX Option Module Connector (POM) (J7) is a 100-pin connector that resides directly on the 32-bit non-multiplexed M-mode local bus. This connector allows the designer to attach a custom circuitry module directly onto the local bus.

A master and/or slave device may be connected to this connector. CS4# of the MPC860T is assigned to J7. Users need to configure CS4# for their own application.

3.17 Reset Circuitry

3.17.1 Power-On-Reset

Power-On-Reset is controlled by the Hot Swap controller (U13) and PCI 9056's PCI RST#.

3.17.2 Reset Pushbutton

The Reset Pushbutton (SW1) allows the user to reset the local bus side of the card only. When this button is pressed, the MPC860 processor is reset, along with all devices on the local bus. Reset is also generated for the PLX Option Module.

3.18 Local Bus Arbiter

There are two possible bus masters on the CompactPCI 9056RDK-860: the PCI 9056 and the MPC860. By default, the MPC860 owns the local bus and must grant it to the other bus master.

3.19 Board Modes

The CompactPCI 9056RDK-860 is factory-configured in peripheral mode. It can be user-configured for host mode as detailed in Table 3-6.

3.19.1 Peripheral Mode

A peripheral mode board should be inserted into a peripheral slot of the CompactPCI chassis.

In peripheral mode, the PCI RST# pin is an input and the PCI INTA# is an output.

3.19.2 Host Mode

The host mode board should be inserted into the system slot of the CompactPCI chassis. The PCI Bus arbiter is built into the PCI 9056. In host mode, it can arbitrate up to 7 PCI agents.

In host mode, the system board will operate at 66MHz PCI clock. If another adapter board, that is capable of only running a 33MHz PCI clock, is inserted in the same chassis, then the user has to manually modify the host mode board to run at 33MHz PCI clock. This is done by placing a half-can 33MHz oscillator on U25. R102 is installed and R96 is not installed.

In host mode, PCI INTA# is an input. In the host mode, the PCI RST# pin will become an output instead of an input. In this case, the
PCI 9056, acting as a host bridge in the system slot, will be able to reset all the boards in the peripheral slots.

Table 3-6. User-Configuration For Host Mode

Signal Name	Remove	Place
HOSTEN#	R160 (10K)	R4 (1K)
Host Clock	R158 (0)	R155 (0), R159 (0)
Interrupt I/O	R217 (0)	R166 (0), R167 (0), R168 (0), R218 (0), R223 (2.7K)
J1 REQ/GNT#	R54 (0), R58 (0)	R55 (0), R57 (0)
SYSEN#	R59 (10K)	R60 (1K)
J2 FAL#		R212 (1K)
J2 DEG#		R213 (1K)
J2 FRST#		R214 (1K)
HOT SWAP	R162 (0), R208 (0)	R163 (0)
2.7K Pull-Up		RN32-RN49 (18 pieces)
Host CLK		R96 (0), R102 (0)
CPU Reset	R215 (33)	R216 (0)
M66EN		R53 (5.1K)

3.20 PCI 9056 Response Mode Selection During Initialization

The jumper J9 is used to select the PCI 9056 response mode during the chip initialization. PCI 9056 supports (a) Initially Not Respond; and (b) Initially Retry (please see PLX PCI 9056 Data Book Section 2.4.1.2 for detail descriptions of both options). Jumping J9-1 to J9-2 will select option (a); and jumping J9-3 to J9-4 will select option (b).

3.21 Prototype Area

A prototype area is provided on the CompactPCI 9056RDK-860 to allow a customer to incorporate custom circuitry required for a design. This area contains common surface-mount footprints. In addition, a standard 0.100-inch through-hole grid is included, as well as connections for ground, +5 Volts, and +3.3 Volts.

4. CPLD VERILOG CODE

```
//============================================================
//    PLX Technology
//
//    9056 Mode, MPC860 local bus SYNC. BURST SRAM interface
//
//    SRAM range: 512KB <=2000_0000 to 2007_FFFF
//    2-1-1-1-1 CLOCKS WRITE, and 3-1-1-1-1 CLOCKS READ.
//    32bit wide, burst up to 512KB (A[13:29])
//    NOTE: A[0:3] <=4'b0010 = CSRAM#
//    A31, A30, and TSIZE[0:1]==SRAMWE[3:0]_
// ============================================================

module CPCISRAMCTR
       (CLK,                  // Clock input
        ADDR_IN,              // Address Bus
        UA,                   // Upper 4 bit address for CS#.
        RD_WR_,               // Read/Write
        BURST_,               // Burst Transfer
        TSIZ,                 // Transfer Size
        TS_,                  // Transfer Start
        TA_,                  // Transfer Acknowledge
        //BB_,                // Bus Busy
        BDIP_,                // Burst Data In Progress

        //SRAM signal.
        SRAM_ADDR,
        SRAMCS_,
        SRAMOE_,
        SRAMWE_
        );

//  Port Signal Declarations
//input        BB_;
input          CLK, RD_WR_, BURST_, TS_, BDIP_;
input  [0:3]   UA;
input  [13:31] ADDR_IN;
input  [0:1]   TSIZ;
inout          TA_;

output         SRAMCS_,SRAMOE_;
output [13:29] SRAM_ADDR;
output [0:3]   SRAMWE_;

reg    [13:29] SRAM_ADDR;
reg    [2:0]   sramstate;
reg            SRAMCS_REG, SRAM_SEL, TA_REG;

//output and variable signals
wire  SRAMCS_ = SRAMCS_REG;
wire  write_enable = (SRAM_SEL & !RD_WR_);
wire  SRAMOE_ = !(SRAM_SEL & RD_WR_);
wire  TA_ = TA_REG;
```

```
// sram byte enable decode
wire [0:3] SRAMWE_ =
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_01_00)? 4'b0111:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_01_01)? 4'b1011:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_01_10)? 4'b1101:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_01_11)? 4'b1110:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_10_00)? 4'b0011:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_10_10)? 4'b1100:
   ({write_enable, TSIZ, ADDR_IN[30:31]} == 'b1_00_00)? 4'b0000: 4'b1111;

// SRAM State
always @(posedge CLK)
casex (sramstate)
   'b000: if((UA[0:3] == 4'b0010) & !(TS_))     //start
             begin
                TA_REG = 'b1;
                SRAM_ADDR[13:29] = ADDR_IN[13:29];    //latch first address.
                if(RD_WR_)                            //if read
                   begin
                      SRAMCS_REG = 'b0;
                   end
                sramstate  = 'b010;
             end
          else
             begin
                SRAM_SEL = 'b0;
                SRAMCS_REG = 'b1;
                TA_REG = 'bz;
                sramstate  = 'b000;
             end

   'b010: begin
             SRAM_SEL = 'b1;
             SRAMCS_REG = 'b0;
             TA_REG = 'b0;
             if(!BURST_)
                begin
                   if(RD_WR_)
                      SRAM_ADDR[13:29] = (SRAM_ADDR[13:29] + 1);
                   if(!BDIP_)                                 //burst-4
                      sramstate  = 'b110;
                    else                                      //burst-x
                      sramstate  = 'b011;
                end
            else
               begin
                  if(RD_WR_)
                     SRAMCS_REG = 'b1;
                  sramstate = 'b111;                          //single.
               end
          end
```

```
   'b111: begin                                          //single
             SRAMCS_REG = 'b1;
             TA_REG = 'b1;
             SRAM_SEL = 'b0;
             sramstate = 'b000;
          end

   'b110: if(!BDIP_)                                     //burst-4
             begin
                SRAM_ADDR[13:29] = (SRAM_ADDR[13:29] + 1);
                sramstate = 'b110;
             end
          else
             begin
                SRAMCS_REG = 'b1;
                TA_REG = 'b1;
                SRAM_SEL = 'b0;
                sramstate = 'b000;
             end

   'b011: if(BDIP_)                                      //burst-x
             begin
                SRAM_ADDR[13:29] = (SRAM_ADDR[13:29] +1);
                sramstate = 'b011;
             end
          else
             begin
                SRAMCS_REG = 'b1;
                TA_REG = 'b1;
                SRAM_SEL = 'b0;
                sramstate = 'b000;
             end

    default: sramstate ='b000;
endcase
endmodule
```

5. BILL OF MATERIALS/ SCHEMATICS

The following pages contain the bill of materials and the schematics for the CompactPCI 9056RDK-860 board.

Table 5-1. Bill of Materials

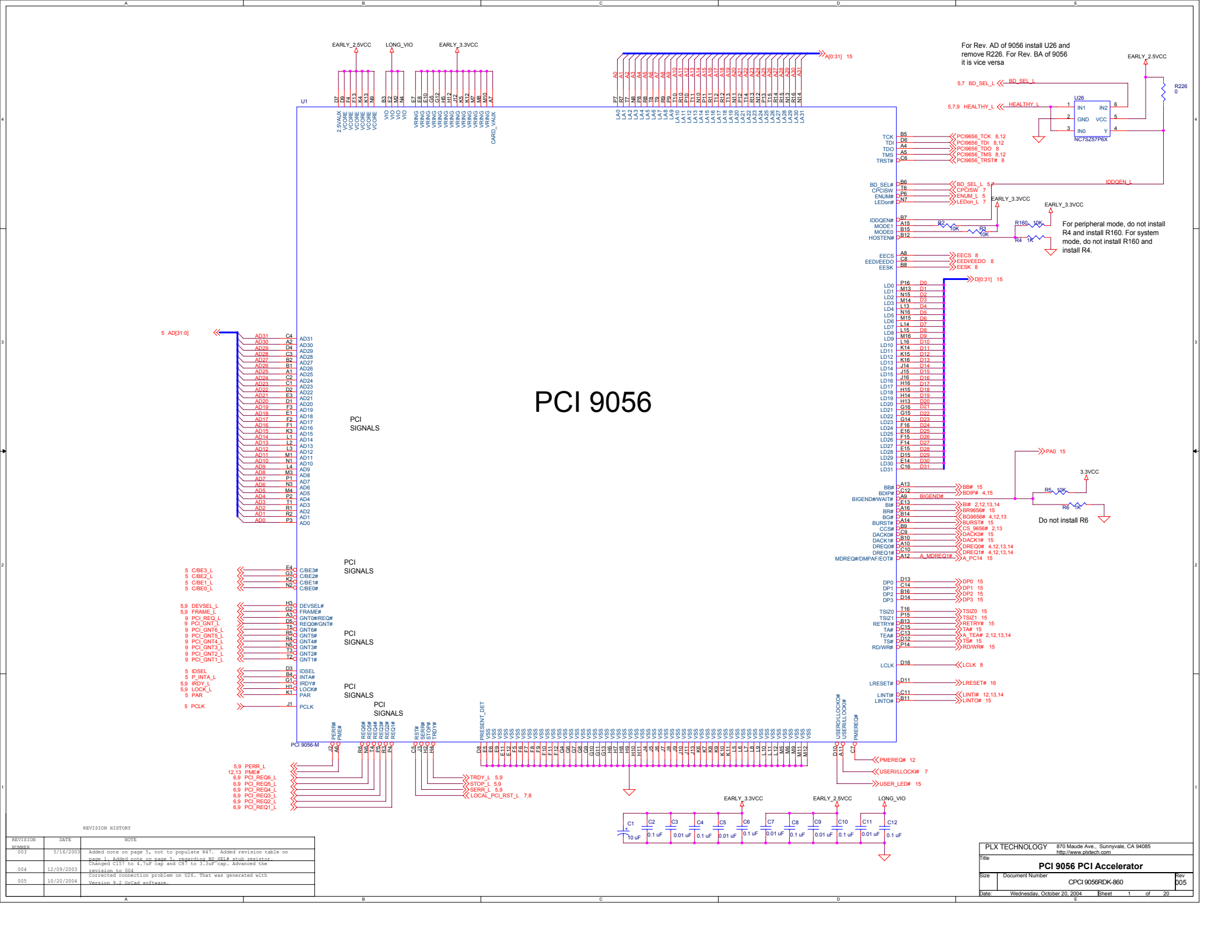
Item #	Qty.	Manufacturer	Manufacturer Part #	Description	Package Type	Component
SURFACE MOUNT COMPONENTS						
1	2	Samsung	K4S561632A-TC/L1L	IC, SDRAM, 256 Mbit, 4M x 16 Bit x4 Banks	54 PIN TSOP	U3, U4
2	1	Intel	E28F640J3A-120	IC, Flash, 8 Mbyte	56 Lead TSOP	U9
3	11	Samtec	TSM-110-01-L-DV-A	Headers, 20 pins, dual, 0.1", SMT	SMT, DIP-20	JP1-JP11
4	2	Linear Technology	LT1587CM-3.3	IC, 3.3 V Regulator, 3A	SMT, DD PAK- 3	U15, U41
5	1	Cypress	CY2305SC-1	IC, Clock Buffer, 5 outputs	SOIC-8	U21
6	1	Omron	SW416-ND	Switch, Push Button	SMT	SW1
7	1	Maxim	MAX6306UK30D3-T	IC, Reset Controller, 1ms reset	SOT23-5	U36
8	1	Tyco(AMP)	1-104655-1	Connector, 100 pin, dual, male	SMT	J7
9	3	Fairchild	74LCX257MTC	IC, Quad 2 input multiplexer	16 lead TSSOP	U5-U7
10	1	Linear Technology	LTC1643LCGN	IC, Hot swap controller	16 pin SSOP	U13
11	3	Fairchild	NC7SZ04M5	IC, Inverter		U17, U37, U43
12	1	Fairchild	NC7SZ02M5	IC, NOR gate		U18
15	1	Tyco(AMP)	822472-3	Socket, PLCC, 32 pin, 0.05" centerline, Tin Lead, SMT	SMT, PLCC-32	U10
16	1	Fairchild	FDR4420A	IC, N channel MOSFET		U14
17	1	Semtech	E21117ACST-2.5	IC, 2.5 V Regulator	SOT-223	U16
18	1	Motorola	1SMA12CAT3	IC, 12 V Zener diode	SMA	D1
22	2	Maxim	MAX3245CAI	IC, RS-232 transceiver		U32, U33
25	1	Motorola	XPC860TZP66D4	IC, MPC860T Processor, 66MHz		U2
26	1	AMP	1339160-1	Conn, RJ45, 8 positions, SMT		P3
27	1	PLX Technology	PCI 9056-BA66BI (or PCI 9056-BA66BES)	IC, PCI Accelerator		U1
28	1	Lattice	ispLSI2128VE-200LT100	IC, Lattice 2128VE, 3.3V CPLD		U11
29	1	Samsung	K7B403625M-QC75000	IC, Sync Burst SRAM, 128Kx36		U12
31	7	Hewlett Packard	HSMG-C650	LED, Green		D6-D12
32	1	Hewlett Packard	HSMS-C650	LED, Red		D13
33	1	Molex	53398-0390	Header, 3 pin, single row, 0.049", SMT shrouded		S1
34	2	Samtec	TSM-106-01-L-SV-A	Header, single row, 0.1", SMT, 6 pins		J5, J6
35	3	Samtec	ICF-308-T-0	Socket, DIP, 8 pin, SMT		U19, U22, U25
37	10	Steward	LI0805E400R	Ferrite, 500 mA, 40 Ohm, size 0805		L2-L7, L9-L12

Item #	Qty.	Manufacturer	Manufacturer Part #	Description	Package Type	Component
38	2	ECS	OECS-3953C-666-TR	Oscillator, 3.3 V, 66.666MHz, SMD		U20, U23
39	1	Intel / Level One	LXT972LC	Transceiver, 3.3 V, 10/100 Fast Ethernet		U27
40	1	Pulse	H1012B	Transformer Module, 10 / 100		U29
41	1	ECS	OECS3953C-250-TR	Oscillator, 3.3 V, 25MHz, SMD		U30
43	2	Fairchild	NC7SZD384P5	IC, Bus switch, 1 bit		U35, U38
45	1	Cypress	CY2309-1	IC, Clock buffer, 9 outputs	16-pin 150-mil SOIC	U24
46	28	Panasonic	ECS-T1DC106R	Capacitor, 10 uF, Tantalum, Polar, 20 V, 20 %, Size C Case	SMT- C Case	C1, C13, C19, C34, C44, C51, C57, C73, C80, C83, C88, C94, C104, C112, C133, C139, C147, C159, C161, C162, C165, C168, C170, C171, C173, C175, C178, C180
47	102	Kemet	C0805C104M5UAC	Capacitor, 0.1 uF, Ceramic, Non-polar, 50 V, 20 %, Size 0805	SMT, 0805	C2, C4, C6, C8, C10, C12, C14, C15-C17, C20, C22, C24, C26, C28, C30-C33, C35-C40, C42, C43, C45-C50, C52-C56, C58-C62, C74-C79, C81, C82, C84, C85, C89-C93, C101-C103, C105, C106, C114-C117, C119, C123, C129, C134-C138, C140-C146, C148-C153, C158, C160, C166, C167, C169, C172, C174, C176, C177, C179, C181, C182
48	8	Kemet	T491A104K035AS	Capacitor, 0.1 uF, Tantalum, Polar, 35 V, 20 %, Size A Case	SMT- A Case	C121, C124-C127, C130-C132
49	22	Kemet	C0805C103M5UAC	Capacitor, 0.01 uF, Ceramic, Non-polar 50 V, 20 %, Size 0805	SMT, 0805	C3, C5, C7, C9, C11, C21, C23, C25, C27, C29, C63-C72, C107, C110
50	1	Panasonic	ECJ-2VC1H151J	Capacitor, 150 pF, Ceramic, Non-polar 50 V, 5 %, Size 0805	SMT, 0805	C18
51	1	Panasonic	ECJ-2YB1H473K	Capacitor, 0.047 uF, 50 V, Size 0805	SMT, 0805	C86
52	3	Panasonic	ECJ-2VC1H102J	Capacitor, 0.001 uF, Size 0805	SMT, 0805	C108, C113, C118
53	2	Panasonic	ECJ-2VC1H271J	Capacitor, 270 pF, 5%, Size 0805	SMT, 0805	C109, C111
54	2	Panasonic	ECJ-2VC1H100D	Capacitor, 10 pF, Size 0805	SMT, 0805	C154, C156
55	1	Samtec	TSM-105-01-L-DV-A	Header, 10 pins, dual row, 0.1", SMT	SMT	J1
56	1	Samtec	TSM-108-01-L-SV-A	Header, 8 pins, single row, 0.1"	SMT	J2
57	1	Toko	262LY-822K	Inductor, 0.30A, 8RBS Low Profile, 8.2 mH		L1

Item #	Qty.	Manufacturer	Manufacturer Part #	Description	Package Type	Component
58	3	CTS	742-08-3-332-J-BK	Resistor, Network, 3.3 Kohm, 5%	SMT	RN1-RN3
59	28	CTS	742-08-3-100-J-BK	Resistor, Network, 10 Ohm	SMT	RN4-RN31
60	33	CTS	742-08-3-103-J-BK	Resistor, Network, 10 Kohm, 5%	SMT	RN50-RN82
62	31	Philips	RC11J33R	Resistor, Discrete, 33 Ohm, 0805, 5%	SMT	R19-R31, R83, R85-R88, R95, R97-R100, R103, R104, R156, R157, R172, R173, R215, R221
63	24	CTS	742-08-3-330-J-BK	Resistor, Network, 33 Ohm, 5%	SMT	RN83-RN106
64	43	Philips	RC11J10K0	Resistor, Discrete, 10 Kohm, 0805, 5%	SMT	R2, R3, R5, R7, R8, R17, R59, R73, R77, R78, R90, R118-R120, R123, R126, R127, R140-R151, R160, R180, R182, R186, R188, R190, R192, R198, R200, R202, R204, R206, R231, R232
65	28	Philips	RC11J1K00	Resistor, Discrete, 1 Kohm, 0805, 5%	SMT	R16, R18, R32-R40, R71, R82, R93, R121, R122, R124, R125, R129, R130, R175, R177, R179, R185, R195, R197, R207, R210
66	17	Philips	RC11J0K00	Resistor, Discrete, 0 Ohm, 0805	SMT	R12, R14, R50, R54, R58, R84, R102, R135, R139, R153, R158, R162, R165, R208, R217, R220, R226
67	2	Vishay	WSL1206R100FRE4	Resistor, Discrete, 0.1 Ohm, 1/4W, 1%	SMT, 1206	R41, R42
68	4	Panasonic	ERJ-14RQJR22	Resistor, Discrete, 0.2 Ohm, 1/4W, 5%	SMT, 1210	R43-R46
69	2	Panasonic	ERJ-6GEYJ122V	Resistor, Discrete, 1.2 Kohm, 1/10W, 5%	SMT, 0805	R62, R229
70	4	Panasonic	ERJ-6GEYJ512V	Resistor, Discrete, 5.1 Kohm, 1/10W, 5%	SMT, 0805	R48, R49, R51, R52
71	2	Panasonic	ERJ-6GEYJ202V	Resistor, Discrete, 2 Kohm, 1/10W, 5%	SMT, 0805	R63, R61
72	1	Vishay	WSL2010R007FB43	Resistor, Discrete, 0.018 Ohm, 1/2W, 1%	SMT, 2010	R64
73	1	Panasonic	ERJ-6GEYJ100V	Resistor, Discrete, 10 Ohm, 1/10W, 5%	SMT, 0805	R65
74	1	Panasonic	ERJ-6GEYJ101V	Resistor, Discrete, 100 Ohm, 1/10W, 5%	SMT, 0805	R66
75	1	Panasonic	ERJ-6GEYJ302V	Resistor, Discrete, 3 Kohm, 1/10W, 5%	SMT, 0805	R67
76	3	Panasonic	ERJ-6GEYJ750V	Resistor, Discrete, 75 Ohm, 1/10W, 5%	SMT, 0805	R68, R108, R117
77	4	Panasonic	ERJ-GEYJ106V	Resistor, Discrete, 10 Mohm, 1/10W, 5%	SMT, 0805	R69, R70, R75, R76
78	6	Panasonic	ERJ-6GEYJ331V	Resistor, Discrete, 330 Ohm, 1/10W, 5%	SMT, 0805	R132-R134, R136-R138
79	2	Panasonic	ERJ-6ENF49R9V	Resistor, Discrete, 49.9 Ohm, 1/10W, 1%	SMT, 0805	R109, R110

Item #	Qty.	Manufacturer	Manufacturer Part #	Description	Package Type	Component
80	6	Panasonic	ERJ-6GEYJ510V	Resistor, Discrete, 51 Ohm, 1/10W, 5%	SMT, 0805	R111-R116
81	1	Panasonic	ERJ-6ENF2212V	Resistor, Discrete, 22.1 Kohm, 1/10W, 1%	SMT, 0805	R131
82	2	Panasonic	ERJ-6GEYJ111V	Resistor, Discrete, 110 Ohm, 1/10W, 5%	SMT, 0805	R152, R154
83	2	Samtec	TSM-102-01-L-DV-A	Header, 4 pin, dual, 0.1"	SMT	J8, J9
85	1	Panasonic	ERJ-6GEYJ104V	Resistor, Discrete, 100 Kohm, 1/10W, 5%	SMT, 0805	R171
86	2	Fairchild	NC7SZ66P5	IC, Bus switch, 1 bit, analog	SMT	U42, U44
87	2	Fairchild	7LCX245MTC	IC, Transceiver	SMT	U46, U47
88	1	Panasonic	ECS-T1VC335R	Capacitor, 3.3uF Tantalum, 35V 20%	SMT C-Case	C87
89	1	Panasonic	ECS-T1VC475R	Capacitor, 4.7uF Tantalum 35V 20%	SMT C-Case	C157
THROUGH-HOLE COMPONENTS						
90	2	SPC	DE-9P-FRS	Connector, DB9, Male	Right Angle	P1, P2
91	1	Panasonic	LNG901CFBW	LED, Blue		D2
MANUALLY INSERTED COMPONENTS						
94	3	3M	Digi-Key Part No. 929955-06-ND	Shunt, shorting jumper		J8-1 To J8-3, J8-2 to J8-4, J9-1 to J9-2
95	1	Microchip	93LC56B/P	IC, EEPROM, 4 Kbitx16, 2MHz, serial	DIP-8	U19
96	1	Atmel	AT49LV040-12JC	IC, Flash, 512Kx8 bit	PLCC-32, J Lead	U10
97	1	Ecliptek	EH13TS-33.333M	Oscillator, 33.333MHz, Half can		U25
MISCELLANEOUS COMPONENTS						
99	1	Erni	064176	Conn, J1, CompactPCI, 25 position, female		J3
100	1	Erni	064785	Conn, J2, CompactPCI, 22 position, female		J4
101	1	TBD	TBD	Bracket, front panel, CPCI, 6U		
102	1	TBD	TBD	Overlay, front panel, CPCI, 6U		
103	1		90-0019-200-A	PCB, CPCI 9056RDK-860, Rev 200 (Use schematic CPCI 9056RDK-860 Rev 002)		
104	2 (Note1)	Kycon	JS-1000	Screw, Hex, Jack, 4-40		
105	1	One Stop Systems	FP-6U-4HP-PLX05	Front Panel	6U 4HP	
106	1	One Stop Systems	OL-PLX-9056RDK	Overlay for front panel		
PARTS THAT SHOULD NOT BE ASSEMBLED						
13	0	Fairchild	NC7SZ125P5X	IC, buffer with 3-state output	5-lead SC70, SMT	U8
14	0	Fairchild	NC7SZ57P6X	IC, universal configurable 2-input logic gate	6-lead SC70, SMT	U26
60	0	CTS	742-08-3-103-J-BK	Resistor, Network, 10 Kohm, 5%	SMT	RN107-RN115

Item #	Qty.	Manufacturer	Manufacturer Part #	Description	Package Type	Component
64	0	Philips	RC11J10K0	Resistor, Discrete, 10 Kohm, 0805, 5%	SMT	R92, R161, R164, R174, R176, R178, R184, R194, R196, R209
65	0	Philips	RC11J1K00	Resistor, Discrete, 1 Kohm, 0805, 5%	SMT	R4, R6, R60, R81, R91, R181, R183, R187, R189, R191, R193, R199, R201, R203, R205, R212-R214, R219
66	0	Philips	RC11J0K00	Resistor, Discrete, 0 Ohm, 0805	SMT	R11, R13, R15, R55, R57, R89, R94, R96, R101, R155, R159, R163, R166, R167, R168, R211, R216, R218
69	0	Panasonic	ERJ-6GEYJ122V	Resistor, Discrete, 1.2 Kohm, 1/10W, 5%	SMT, 0805	R47
70	0	Panasonic	ERJ-6GEYJ512V	Resistor, Discrete, 5.1 Kohm, 1/10W, 5%	SMT, 0805	R53, R56
108	0	CTS	742-08-3-272-J-BK	Resistor, Network, 2.7 Kohm, 5%	SMT	RN32-RN49
109	0	Panasonic	ERJ-6GEYJ272V	Resistor, Discrete, 2.7 Kohm, 1/10W, 5%, 080	SMT	R223
ALTERNATE VENDORS LIST						
64	0	Panasonic	ERJ-6GEYJ103V	Resistor, Discrete, 10 Kohm, 0805, 5%	SMT	R2, R3, R5, R7, R8, R17, R59, R73, R77, R78, R90, R126, R127, R140-R151, R160, R180, R182, R186, R188, R190, R192, R198, R200, R202, R204, R206, R231, R232
Note 1: Sold as 500 pieces / bag. Purchase 1 bag for every 250 boards.						
PLX Part #: 91-0019-210-B						



REVISION HISTORY

REVISION NUMBER	DATE	NOTE
003	5/16/2003	Added note on page 5, not to populate R47. Added revision table on page 1. Added note on page 5, regarding BD_SEL# stub resistor.
004	12/09/2003	Changed C157 to 4.7uF cap and C87 to 3.3uF cap. Advanced the revision to 004
005	10/20/2004	Corrected connection problem on U26. That was generated with Version 9.2 OrCad software.

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Title: **PCI 9056 PCI Accelerator**

Size | Document Number: CPCI 9056RDK-860 | Rev: 005

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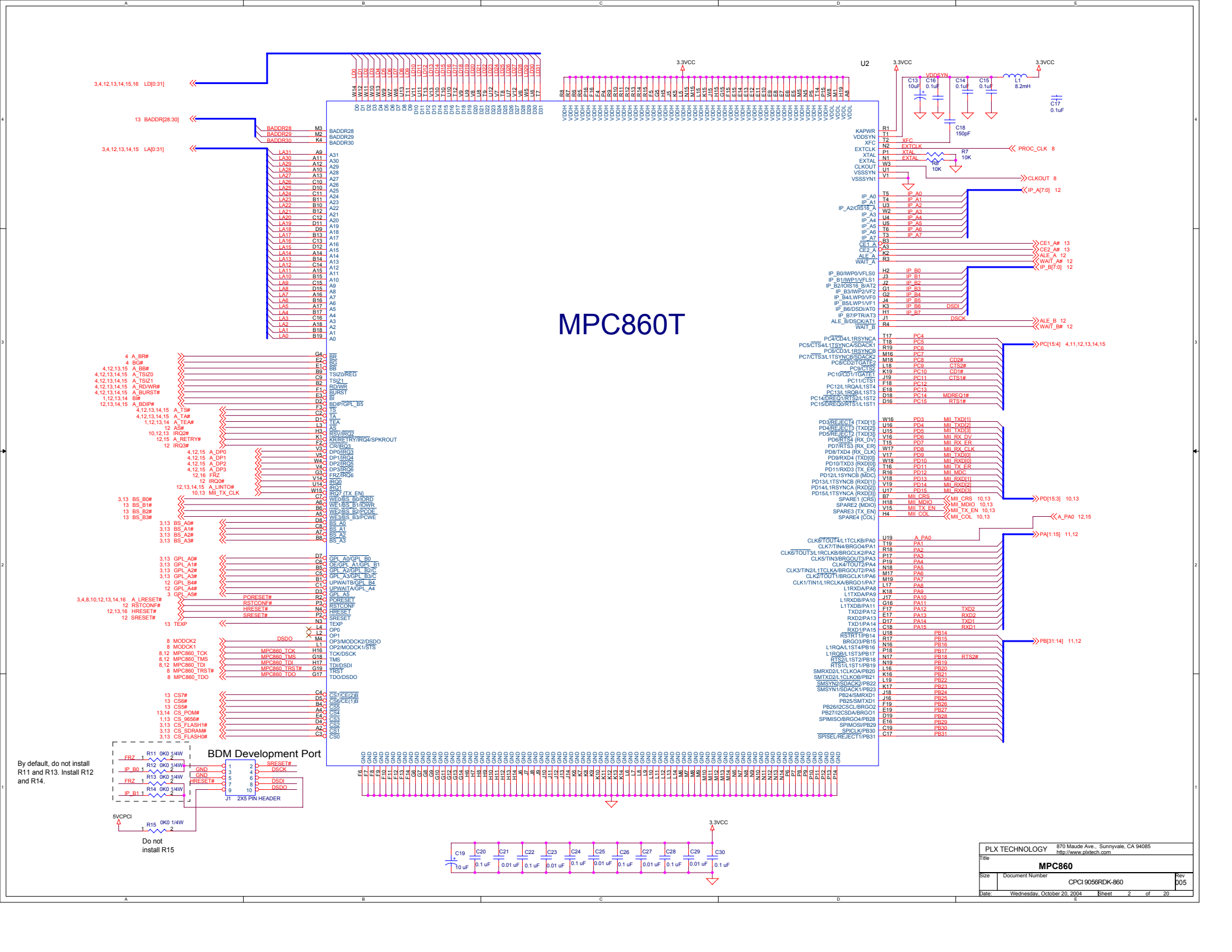
MPC860T
U2
BDM Development Port
J1 2X5 PIN HEADER
By default, do not install R11 and R13. Install R12 and R14.
Do not install R15
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http://www.plxtech.com
Title
MPC860
Size
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005
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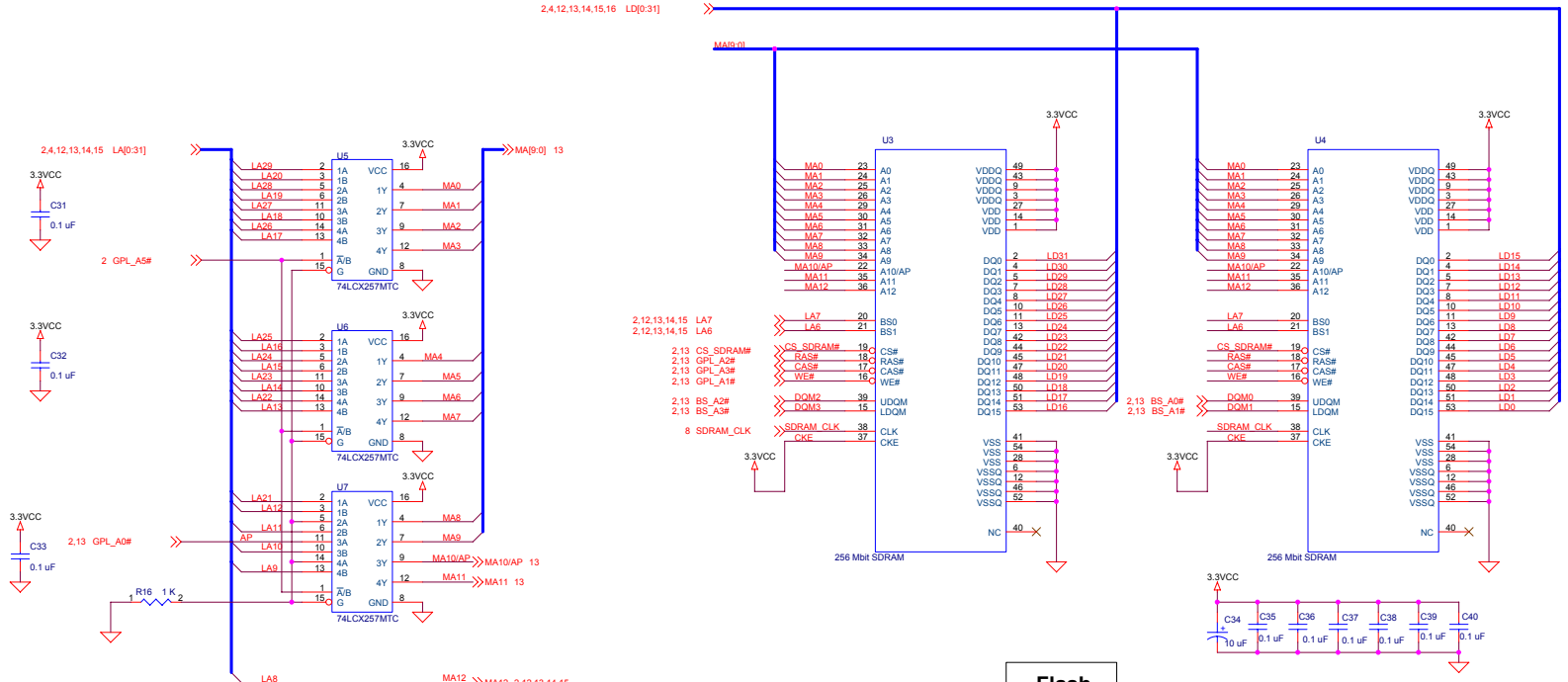
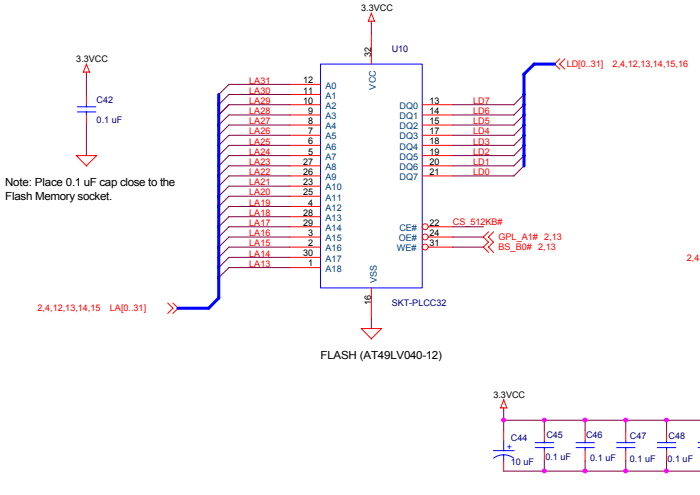
SDRAM

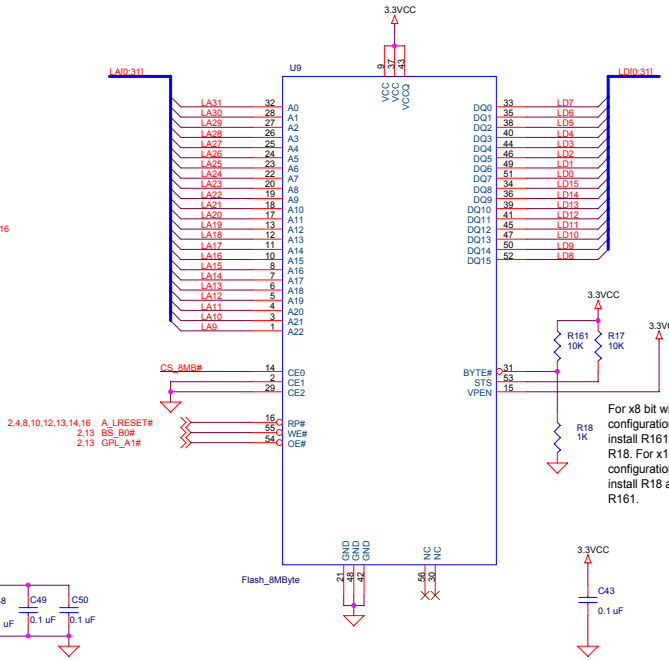


Flash



Note: Place 0.1 uF cap close to the Flash Memory socket.

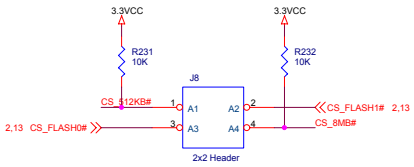
Flash



For x8 bit wide configuration, do not install R161 and install R18. For x16 bit wide configuration, do not install R18 and install R161.

C44 10 uF; C45 C46 C47 C48 C49 C50 0.1 uF

Flash Select



NOTE : By default, jumper pin1 to pin 3 and pin2 to pin 4. Jumpering pin 1 and 3 will select the 512Kbyte Flash for boot up or jumpering pin 3 and 4 will select the 8 Mbyte Flash for boot up.

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Title	FLASH, SDRAM	
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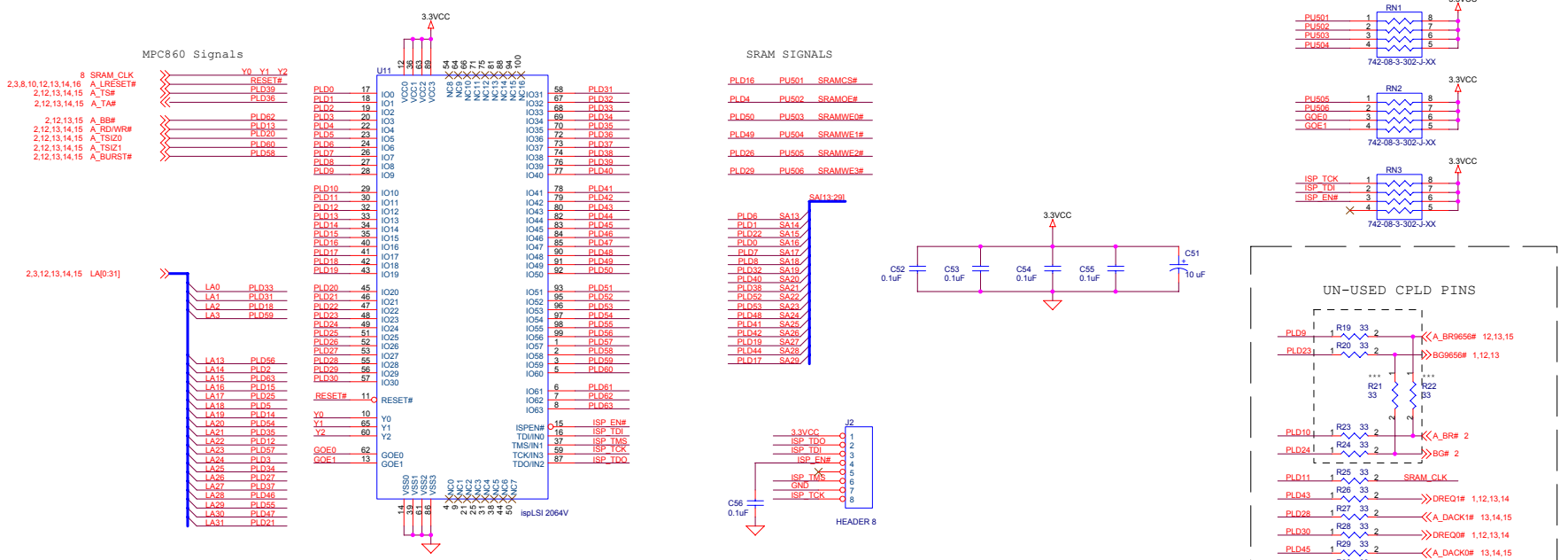
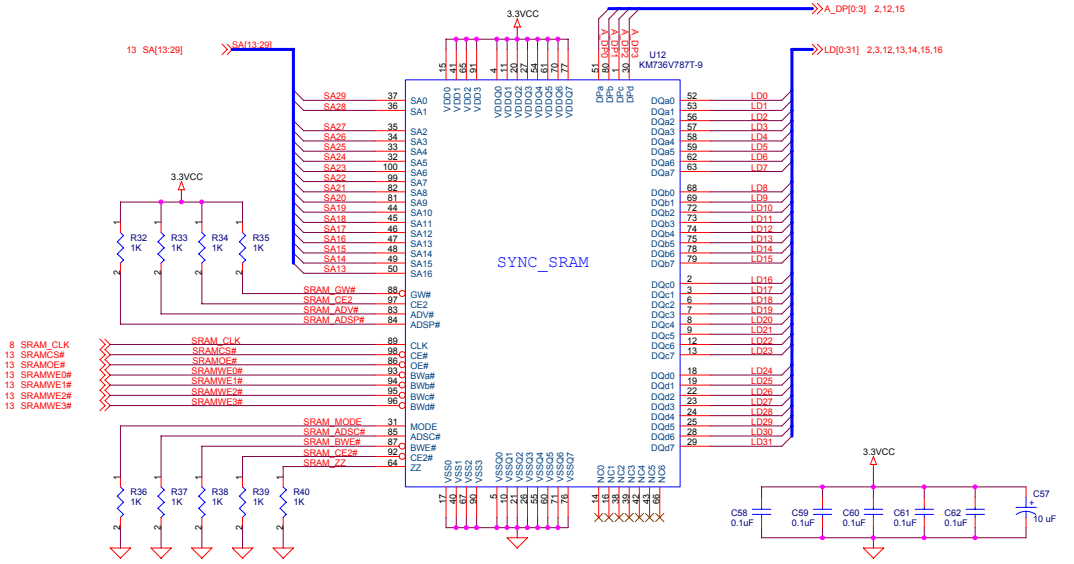
CPLD



SYNCHRONOUS SRAM



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Title	SYNCHRONOUS SRAM	
Size	Document Number CPCI 9056RDK-860	Rev 005
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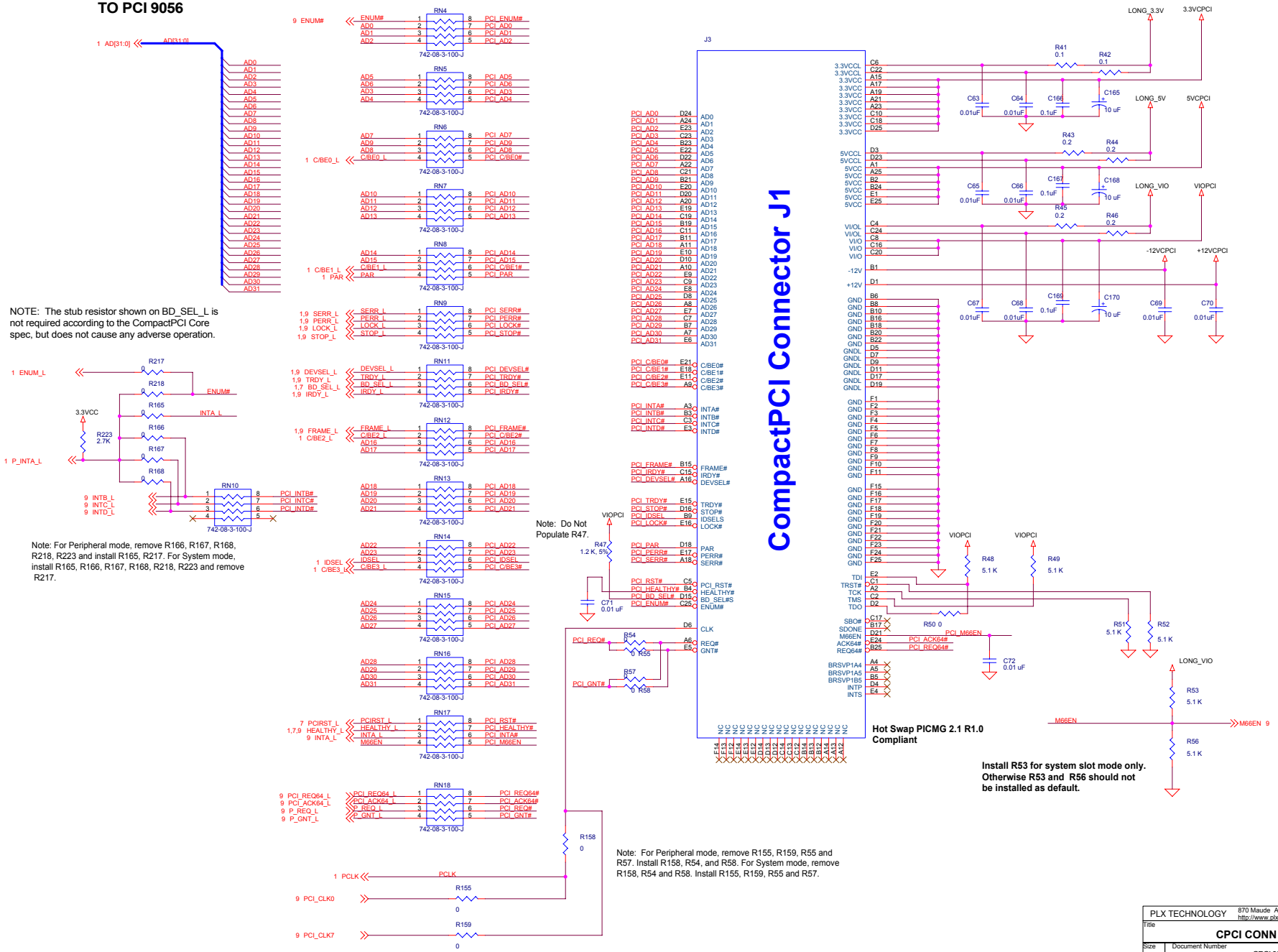
TO PCI 9056

Stub Terminal Resistors

CompactPCI J1



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Title: **CPCI CONN J1**

Size	Document Number	Rev
	CPCI 9056RDK-860	005

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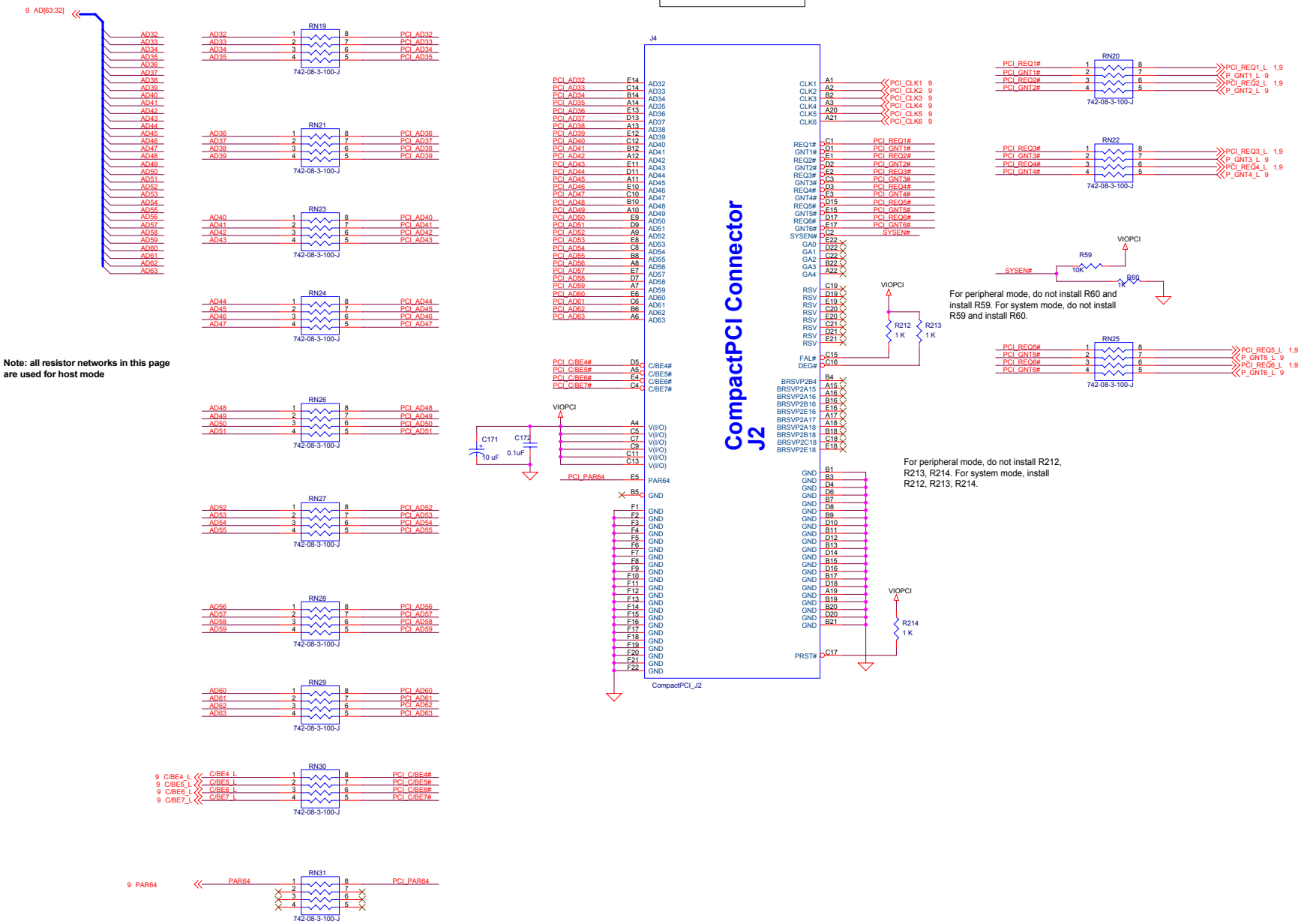
CompactPCI J2



Note: all resistor networks in this page are used for host mode

For peripheral mode, do not install R60 and install R59. For system mode, do not install R59 and install R60.

For peripheral mode, do not install R212, R213, R214. For system mode, install R212, R213, R214.

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Title	CPCI CONN J2		
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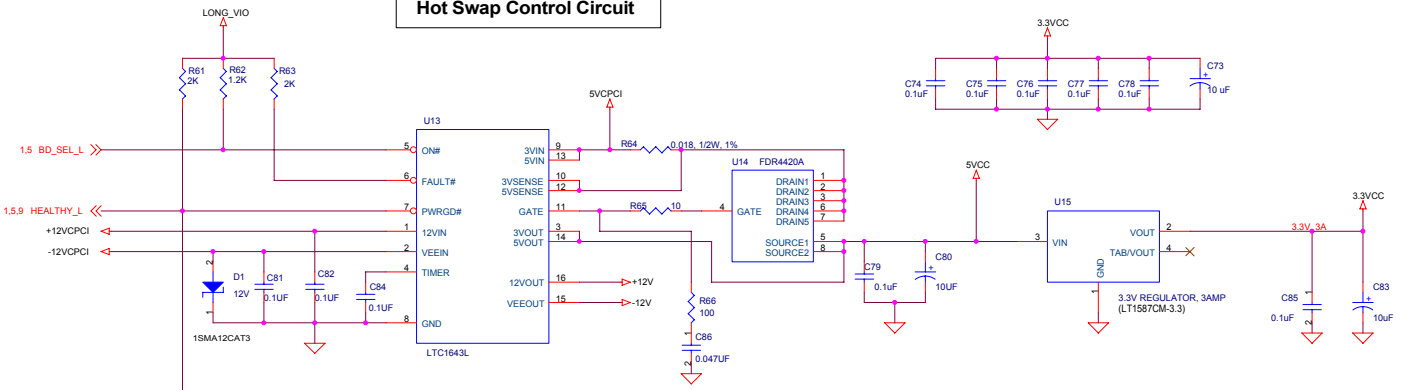
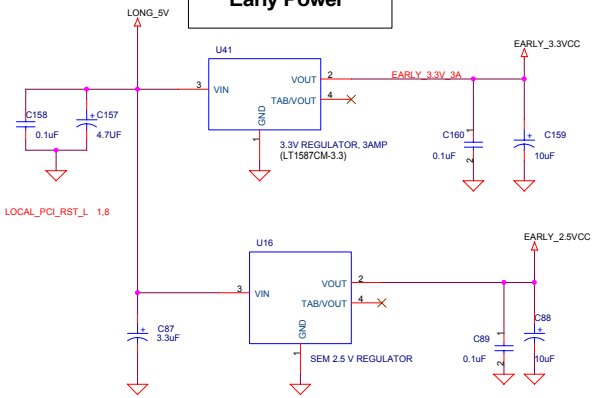
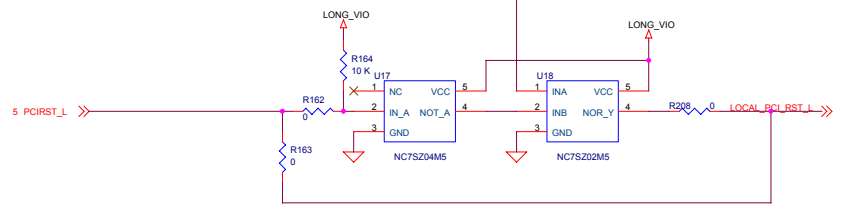
Hot Swap Control Circuit



Early Power

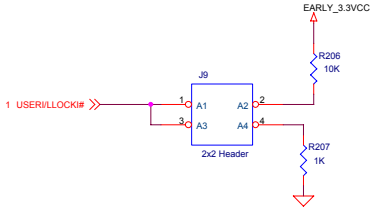


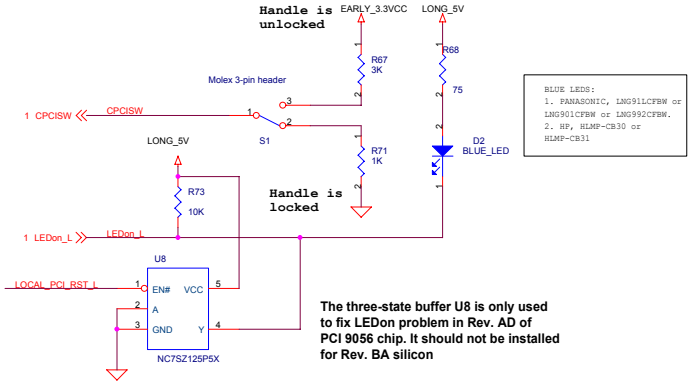


For Peripheral (Adapter) mode, install R162 , R208 and do not install R163. For System(Host) mode, install R163 and do not install R162,R208.

SWITCH & LED

INITIALLY NOT RESPOND JUMPER

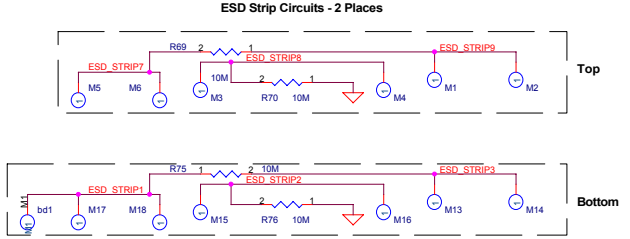




BLUE LEDS:
1. PANASONIC, LNG91LCFBW or LNG901CFBW or LNG992CFBW.
2. HP, HLMP-CB30 or HLMP-CB31

The three-state buffer U8 is only used to fix LEDon problem in Rev. AD of PCI 9056 chip. It should not be installed for Rev. BA silicon

ESD Strip Circuits - 2 Places



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Title: HOT SWAP			
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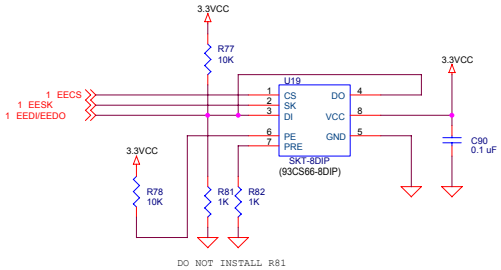
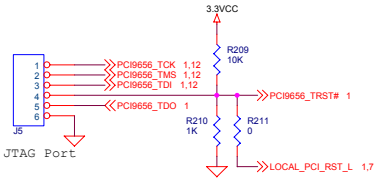
Date: Wednesday, October 20, 2004	Sheet 7 of 20		

Configuration EEPROM

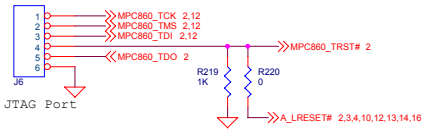


PCI 9056 JTAG



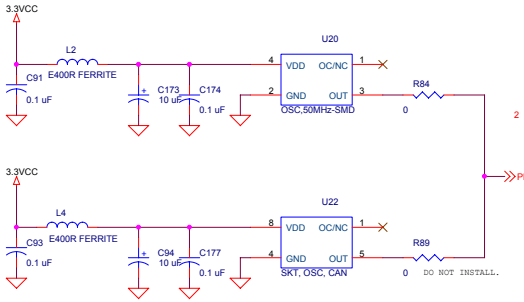
Note: Install R210. Do not install R209 and R211.

MPC860 JTAG



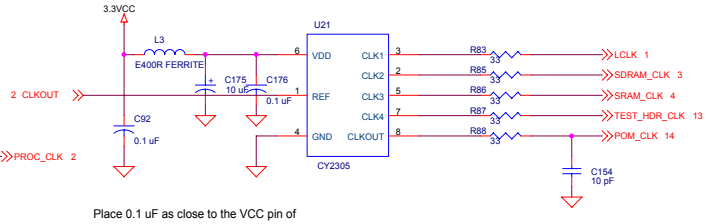
Note: Install R220. Do not install R219.

Oscillator

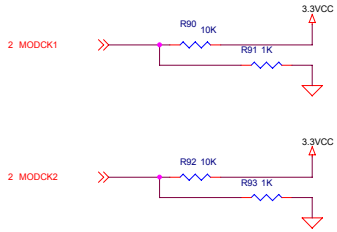


Note : Select only one oscillator by installing R84 or R89. By default, R84 is installed and R89 is removed.

Local Bus Clock Buffer



Place 0.1 uF as close to the VCC pin of clock buffer as possible.



Note: Install R90. Do not install R91.

Note: Install R93. Do not install R92.

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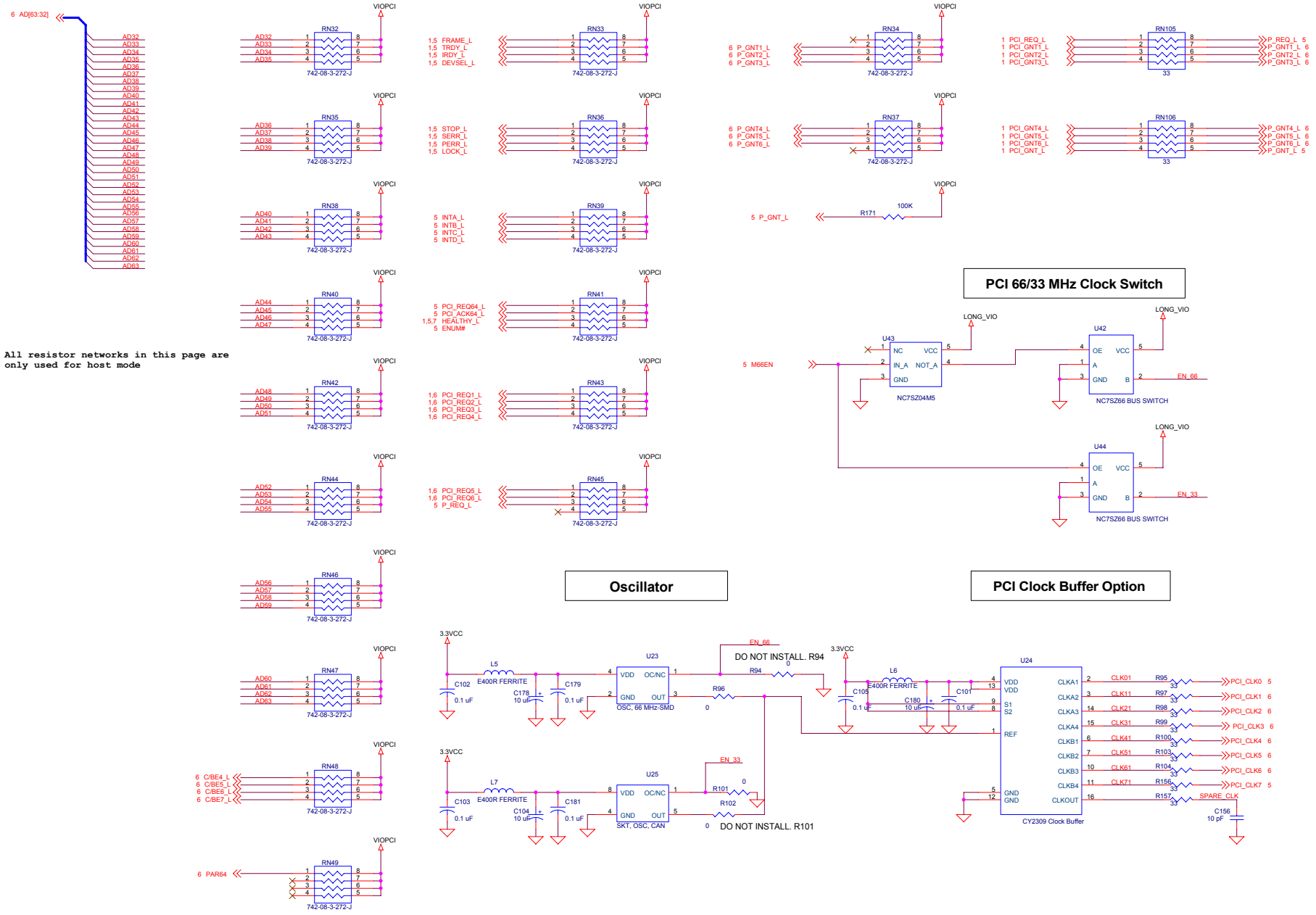
Title	JTAG, CLOCK, EEPROM	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 8 of 20	

Pull Up



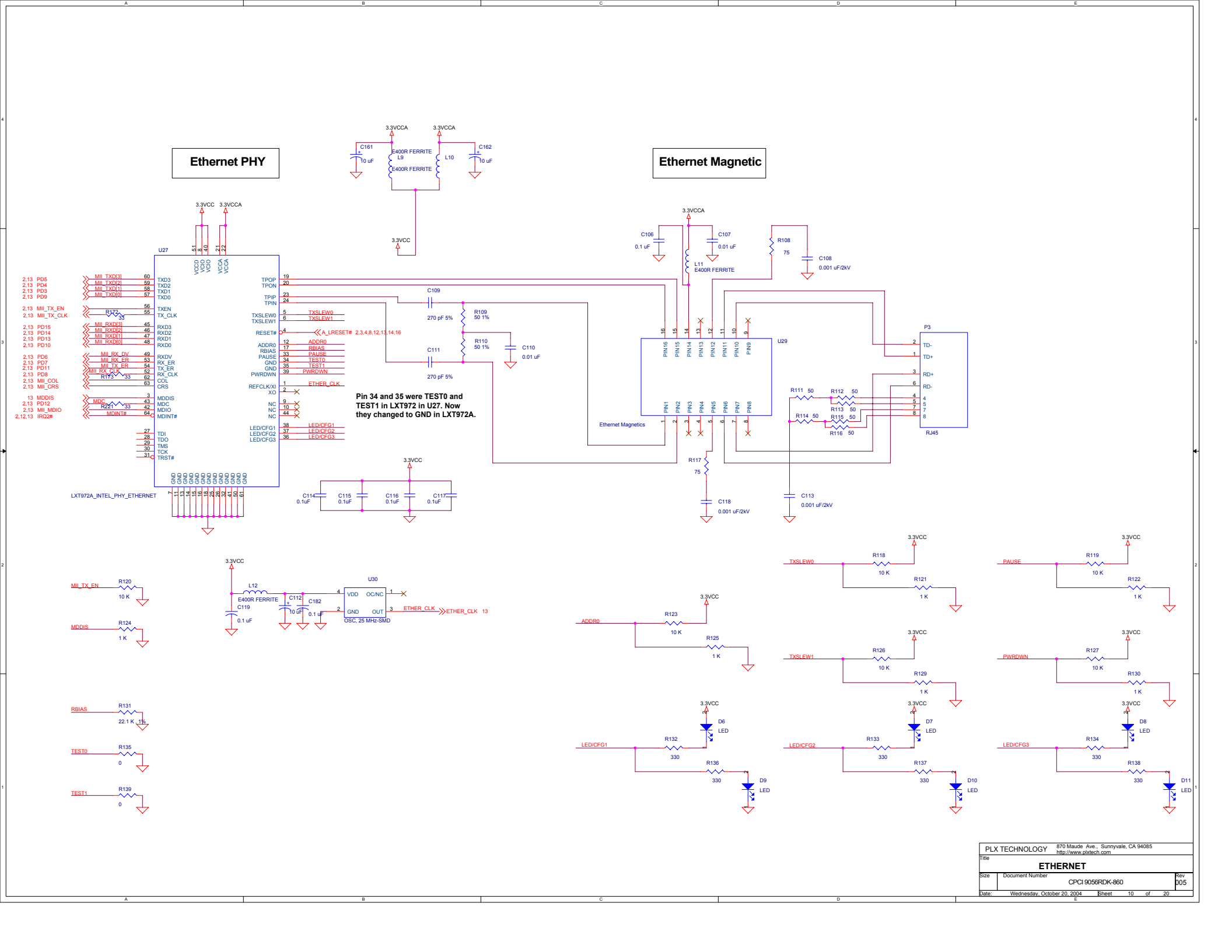
All resistor networks in this page are only used for host mode

PCI 66/33 MHz Clock Switch

Oscillator

PCI Clock Buffer Option

PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com	
Title	HOST MODE	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 9 of 20	


Ethernet PHY
Ethernet Magnetic
U27
LXT972A_INTEL_PHY_ETHERNET
U29
Ethernet Magnetics
P3
RJ45
U30
OSC, 25 MHz-SMD
Pin 34 and 35 were TEST0 and TEST1 in LXT972 in U27. Now they changed to GND in LXT972A.
3.3VCC
3.3VCCA
E400R FERRITE
MII_TXD[3]
MII_TXD[2]
MII_TXD[1]
MII_TXD[0]
MII_TX_EN
MII_TX_CLK
MII_RXD[3]
MII_RXD[2]
MII_RXD[1]
MII_RXD[0]
MII_RX_DV
MII_RX_ER
MII_TX_ER
MII_RX_CLK
MII_COL
MII_CRS
MDIO
MDINT#
TXD3
TXD2
TXD1
TXD0
TXEN
TX_CLK
RXD3
RXD2
RXD1
RXD0
RXDV
RX_ER
TX_ER
RX_CLK
COL
CRS
MDDIS
MDC
TDI
TDO
TMS
TCK
TRST#
TPOP
TPON
TPIP
TPIN
TXSLEW0
TXSLEW1
RESET#
A_LRESET#
ADDR0
RBIAS
PAUSE
GND
TEST0
TEST1
PWRDWN
REFCLK/XI
XO
ETHER_CLK
NC
LED/CFG1
LED/CFG2
LED/CFG3
TD-
TD+
RD+
RD-
PIN1
PIN2
PIN3
PIN4
PIN5
PIN6
PIN7
PIN8
PIN9
PIN10
PIN11
PIN12
PIN13
PIN14
PIN15
PIN16
C106
C107
C108
C109
C110
C111
C112
C113
C114
C115
C116
C117
C118
C119
C161
C162
C182
L9
L10
L11
L12
R108
R109
R110
R111
R112
R113
R114
R115
R116
R117
R118
R119
R120
R121
R122
R123
R124
R125
R126
R127
R129
R130
R131
R132
R133
R134
R135
R136
R137
R138
R139
D6
D7
D8
D9
D10
D11
LED
PLX TECHNOLOGY
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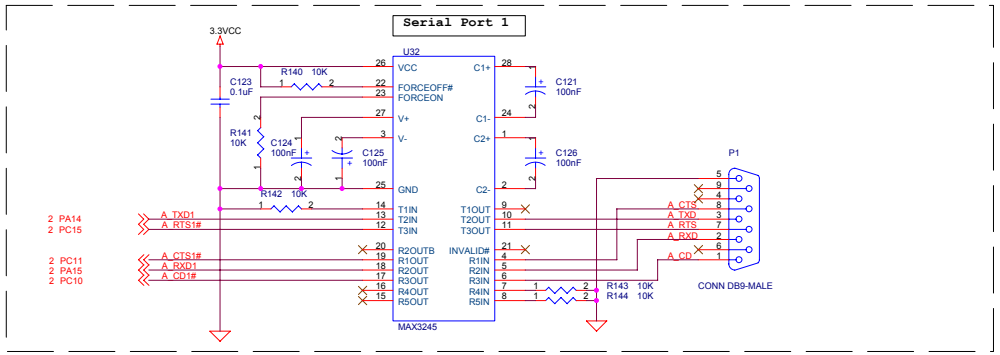
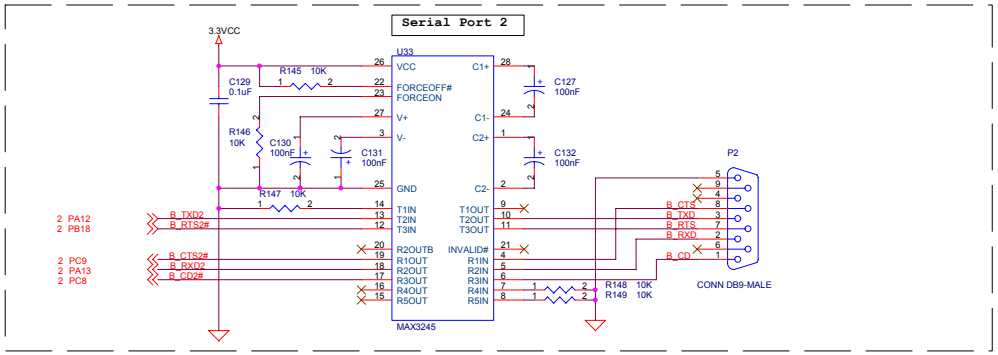
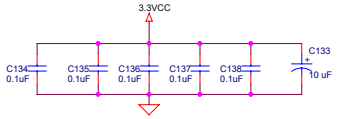
ETHERNET
CPCI 9056RDK-860
Wednesday, October 20, 2004
Sheet 10 of 20

RS-232 Serial Ports







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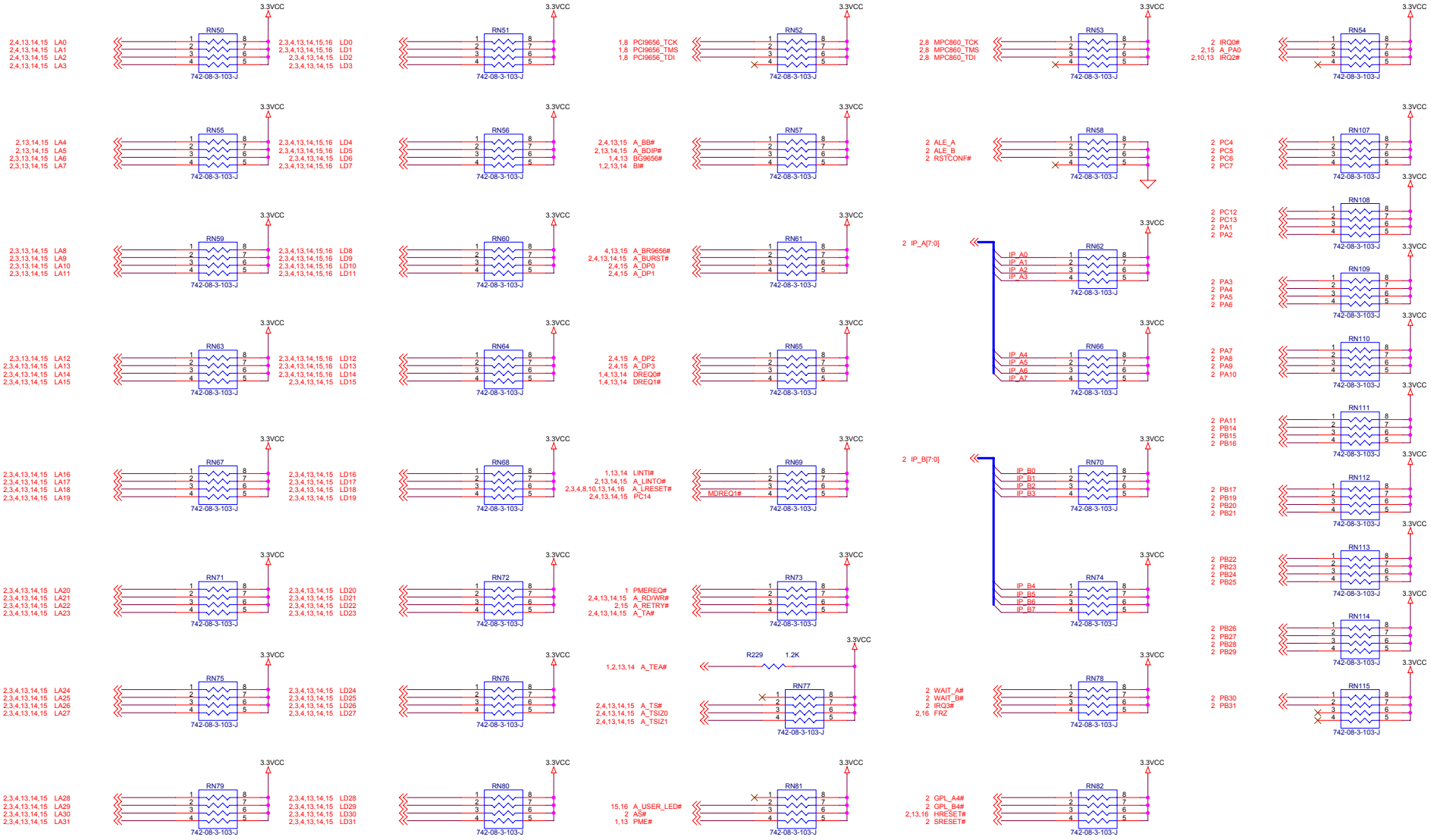
Title	RS-232 SERIAL PORTS	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 11 of 20	

Pull Up



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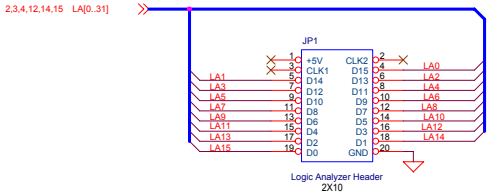
Title: **PULL-UP**

Size | Document Number: CPCI 9056RDK-860 | Rev: 005

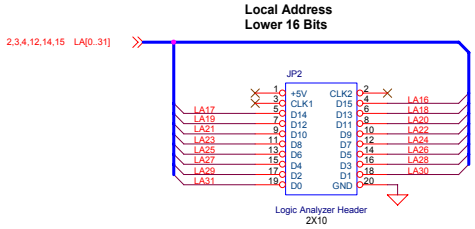
Date: Wednesday, October 20, 2004 | Sheet 12 of 20

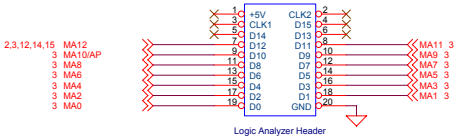
Logic Analyzer Headers

Local Address Upper 16 Bits

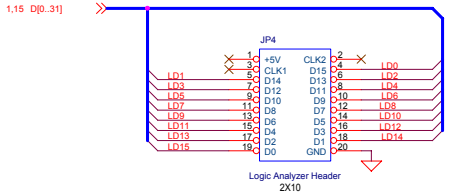


Local Address Lower 16 Bits

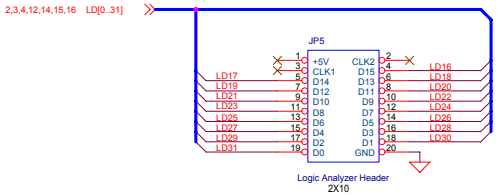


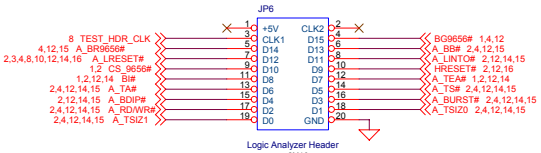


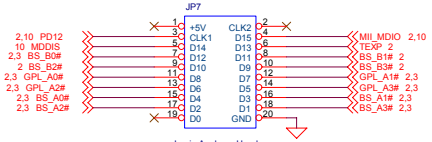
Local Data Upper 16 Bits

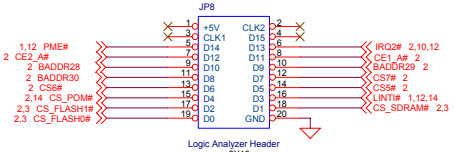


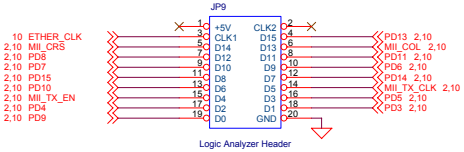
Local Data Lower 16 Bits

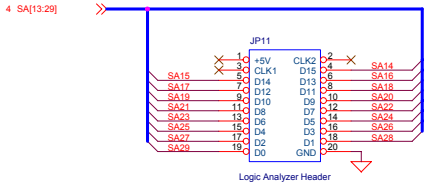


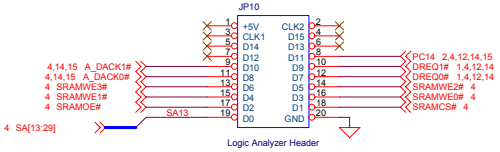












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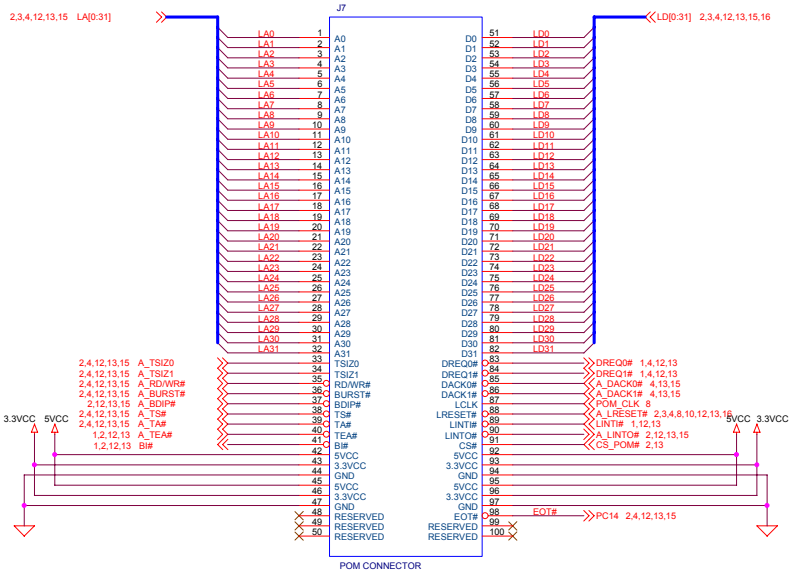
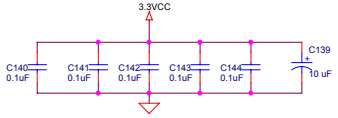
Title	LOGIC ANALYZER HEADERS	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 13 of 20	

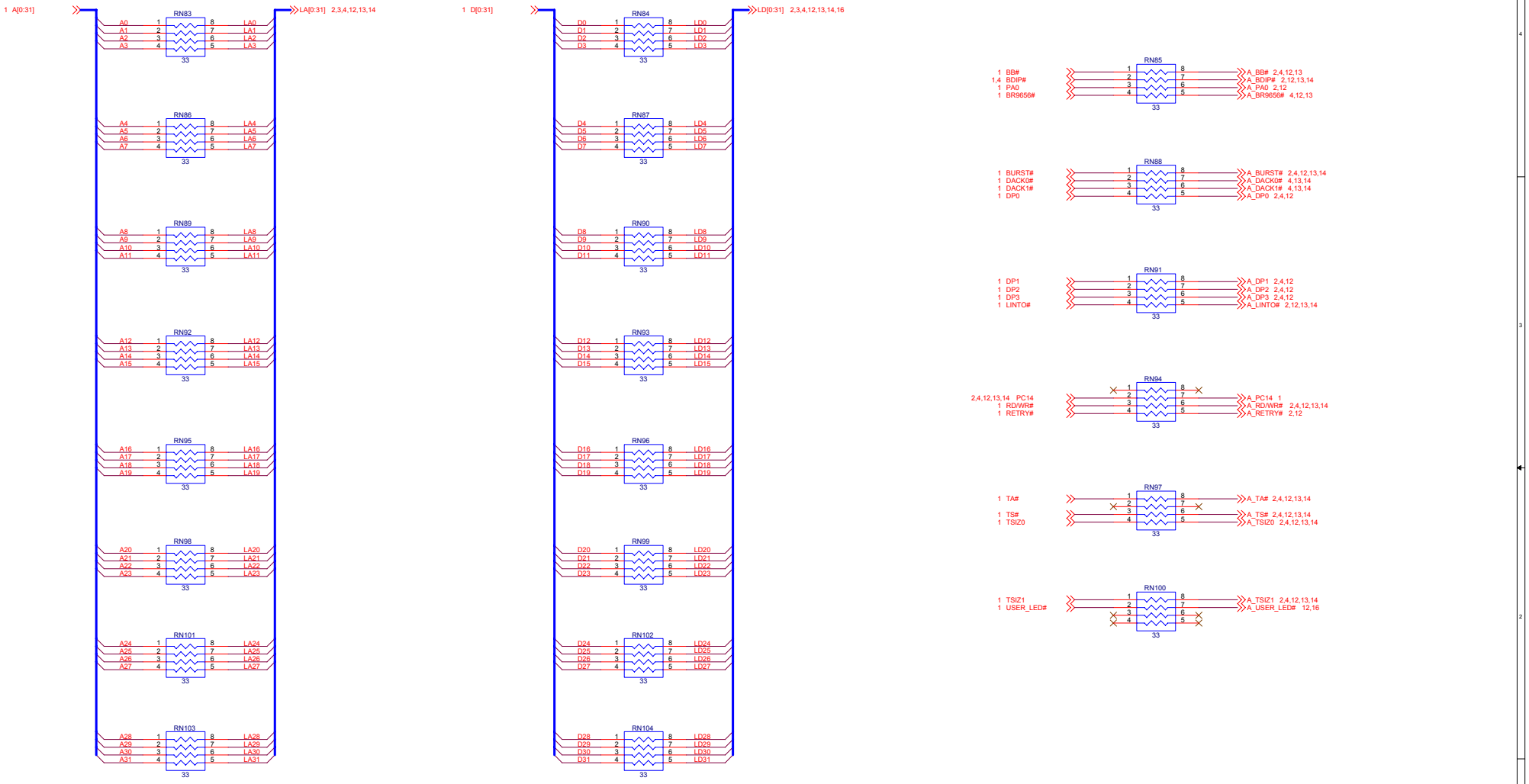
POM Connector





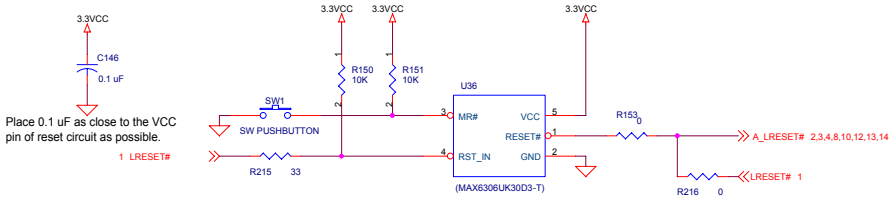
PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com	
Title	POM CONNECTOR	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 14 of 20	

Series Damping Resistors

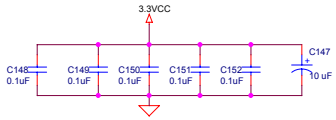


PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com	
Title	SERIES DAMPING RESISTORS	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 15 of 20	

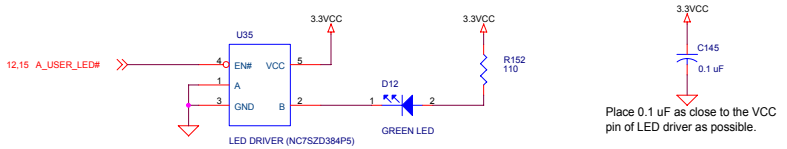
Reset Pushbutton



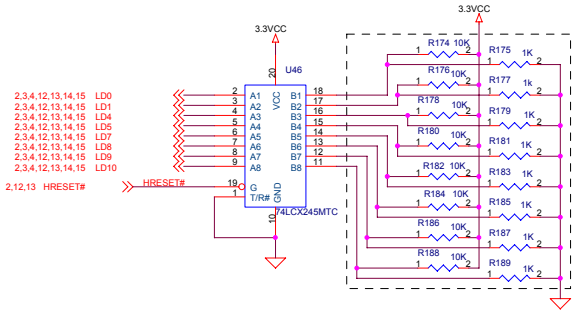
Note: For peripheral mode, install R215 and do not install R216.
For system mode, install R216 and do not install R215.



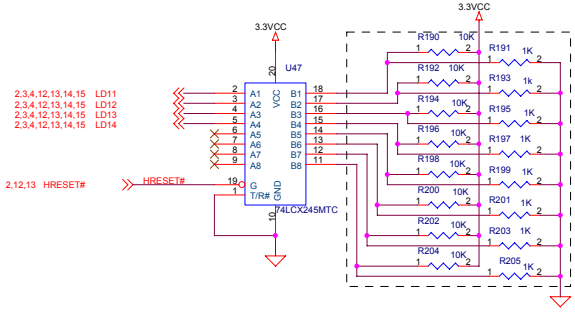
USER LED



Power-Up Configuration

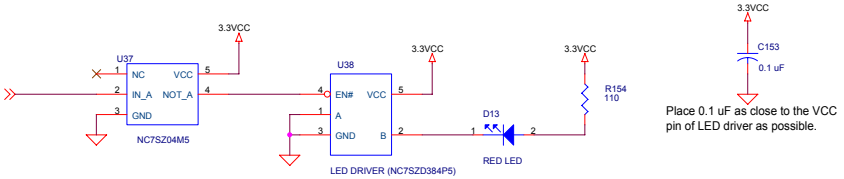


Note: Install R175, R177, R179, R180, R182, R185, R186, R188.
Do not install R174, R176, R178, R181, R183, R184, R187, R189.



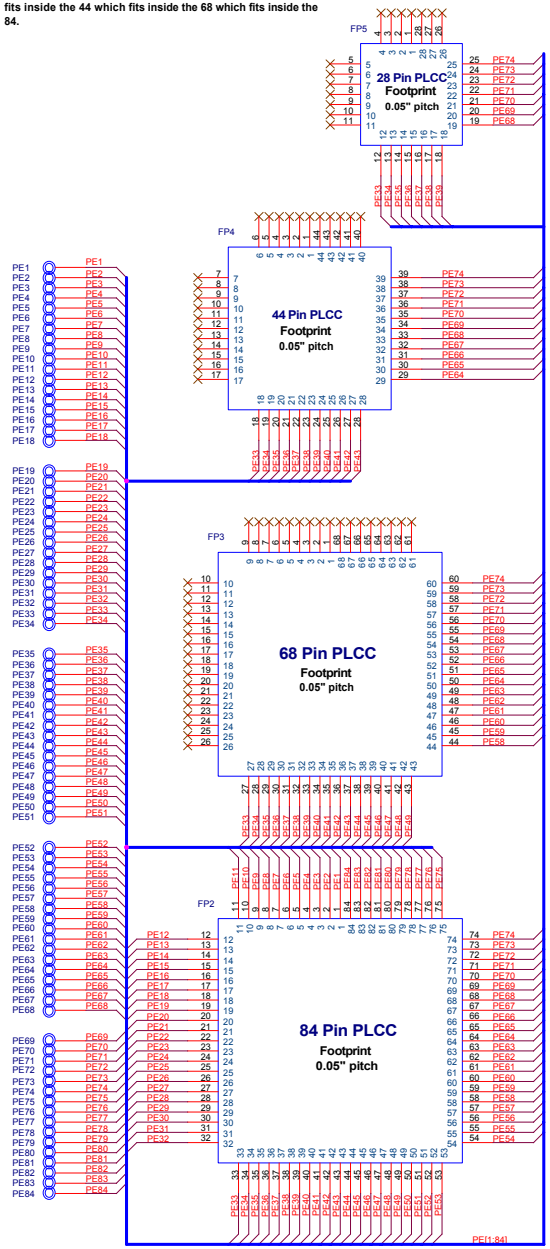
Note: Install R190, R192, R195, R197, R198, R200, R202, R204.
Do not install R191, R193, R194, R196, R199, R201, R203, R205.

BDM LED



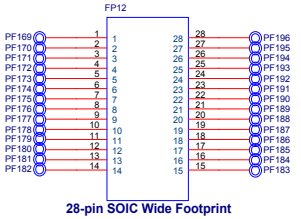
PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com	
Title	RESET, USER LED	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 16 of 20	

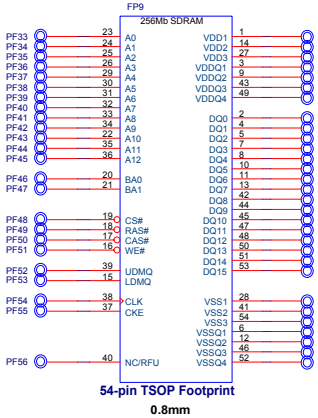
Note: Place four PLCC devices co-incident on the component side of the board; that is, they share common pins and the 28 fits inside the 44 which fits inside the 68 which fits inside the 84.

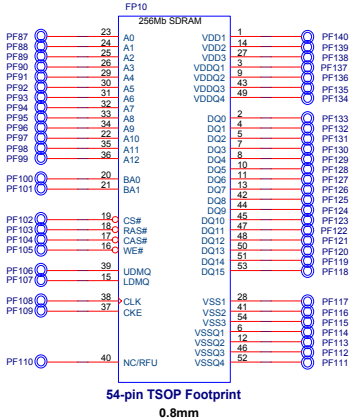


Prototyping Footprint A

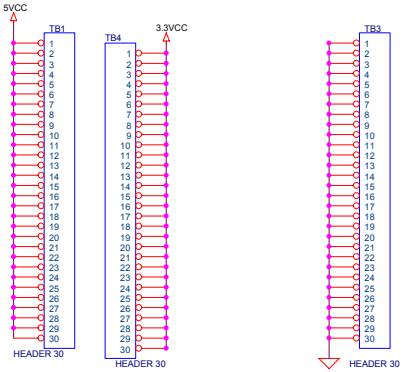
All prototyping Footprints are located on the component side of the PCB







Power & Ground Rails



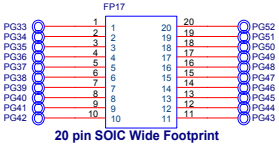
PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com	
Title	PROTOTYPING AREA 1	
Size	Document Number CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 17 of 20	

Prototyping Footprint B

All prototyping footprints are located on the component side of the PCB.

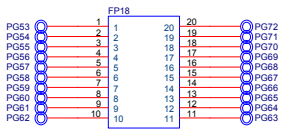
16-pin SOIC Narrow Footprint

0.150" wide, 0.05" pitch



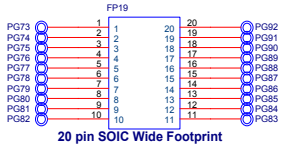
20 pin SOIC Wide Footprint

0.300" wide, 0.05" pitch



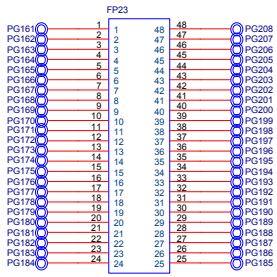
20 pin SOIC Wide Footprint

0.300" Wide, 0.05" pitch



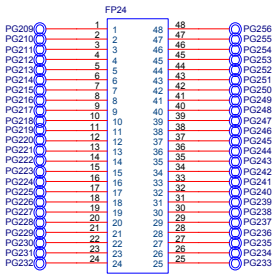
20 pin SOIC Wide Footprint

0.300" wide, 0.05" pitch



48-pin SSOP Footprint

0.300" wide, 0.025" pitch



48-pin SSOP Footprint

0.300" wide, 0.025" pitch

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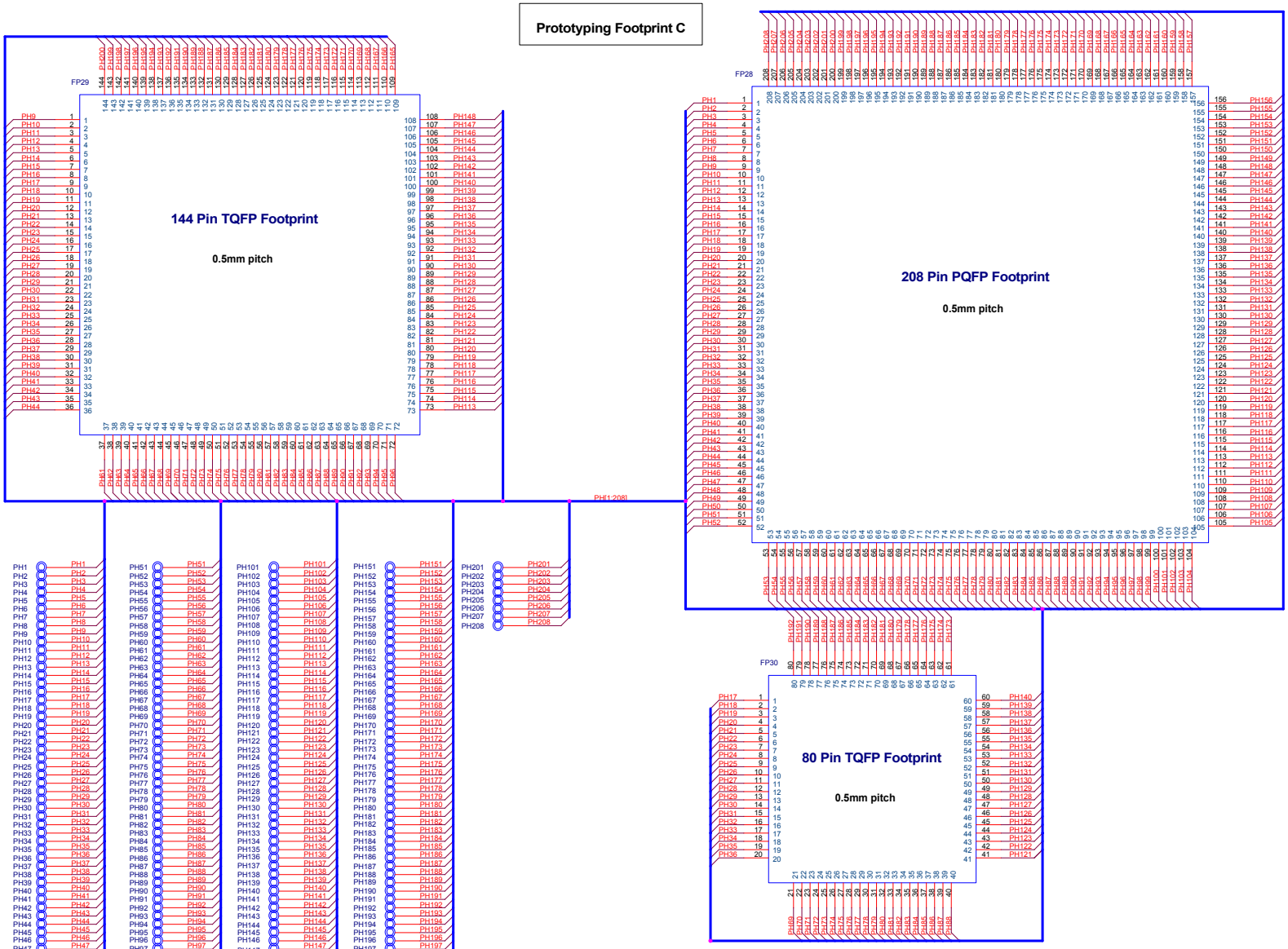
Title	**PROTOTYPING AREA 2**	
Size	Document Number: CPCI 9056RDK-860	Rev: 005
Date: Wednesday, October 20, 2004	Sheet 18 of 20	

Prototyping Footprint C

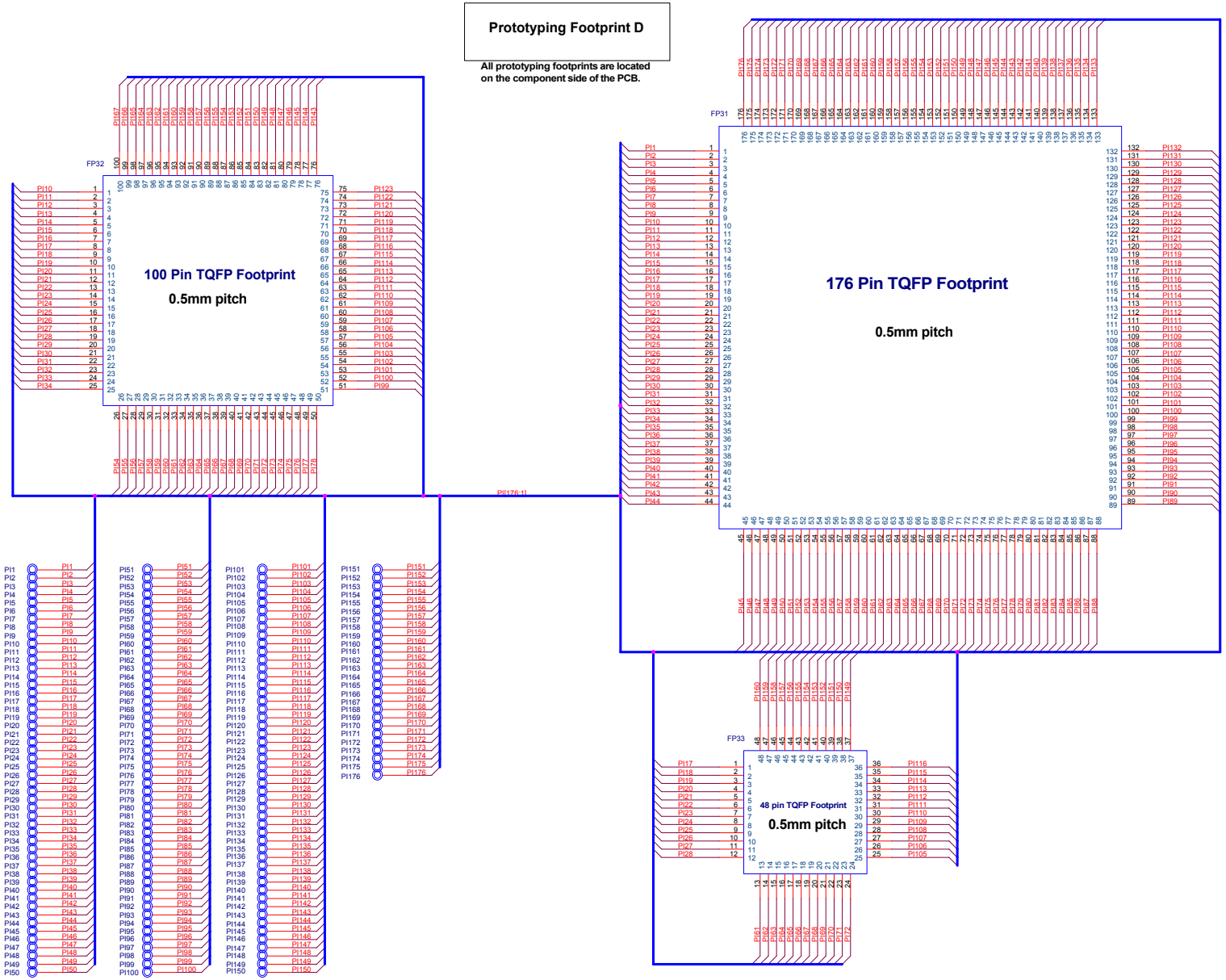


Note: three footprints are placed on the component side of the PCB. They are arranged as FP30 inside of FP29 and FP29 insde of FP28. All 208 holes for prototyping are located outside of 208-pin PQFP footprint.

PLX TECHNOLOGY	870 Maude Ave., Sunnyvale, CA 94085 http://www.plxtech.com		
Title	PROTOTYPING AREA 3		
Size	Document Number	CPCI 9056RDK-860	Rev 005
Date: Wednesday, October 20, 2004	Sheet 19 of 20		

Prototyping Footprint D

All prototyping footprints are located on the component side of the PCB.



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