Sandpoint*

Supporting

MPPMC603 - Talos
MPPMC740 - Talos
MPPMC745 - Talos
MPPMC8240 - Unity
MPPMC8245 - Unity
MPPMC8260 - Cygnus
MPPMC750 - Altimus
MPPMC755 - Altimus
MPPMC7400 - Altimus
MPPMC7410 - Altimus
MPPMC7450 - Valis
...tbd...

***Digital DNA**
from Motorola

Motorola 6501 William Cannon Blvd. Austin, TX 78735

Date Changed: 4/24/2001	Time: 2:13:18 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Title Page	Page: 01

Schematic Notes

1. Unless otherwise specified:
   All resistors are SMD0603, in ohms, 0.1W, +/-5%
   All capacitors are SMD0603, in microfarads (uF), +/-20%.
   All inductances are in microhenries (uH).
   All ferrites are Z=50 ohms at 100 MHz.
   All fuses are self-resetting polyswitch (PTC) devices.
   Board impedance is 50-60 ohms.

2. Integrated circuits have default connections to power and ground unless explicitly shown otherwise. Global power connections are:
   GND
   VCC_3.3V
   VCC_5V

3. Part numbers used are for reference only; compatible parts may be used; refer to the bill of materials.

4.

5. The sheet-to-sheet cross reference format is:
   Sheet "-" VertZoneLetter HorizZoneNumber

6. Components with the property "no_stuff" are not to be installed by default; they are for test or manufacturing purposes only.

7. All buses follow big-endian bit numbering order (bit 0 is the most-significant bit), except where industry standards apply (i.e. PCI). Little-endian numbering is noted at the source component.

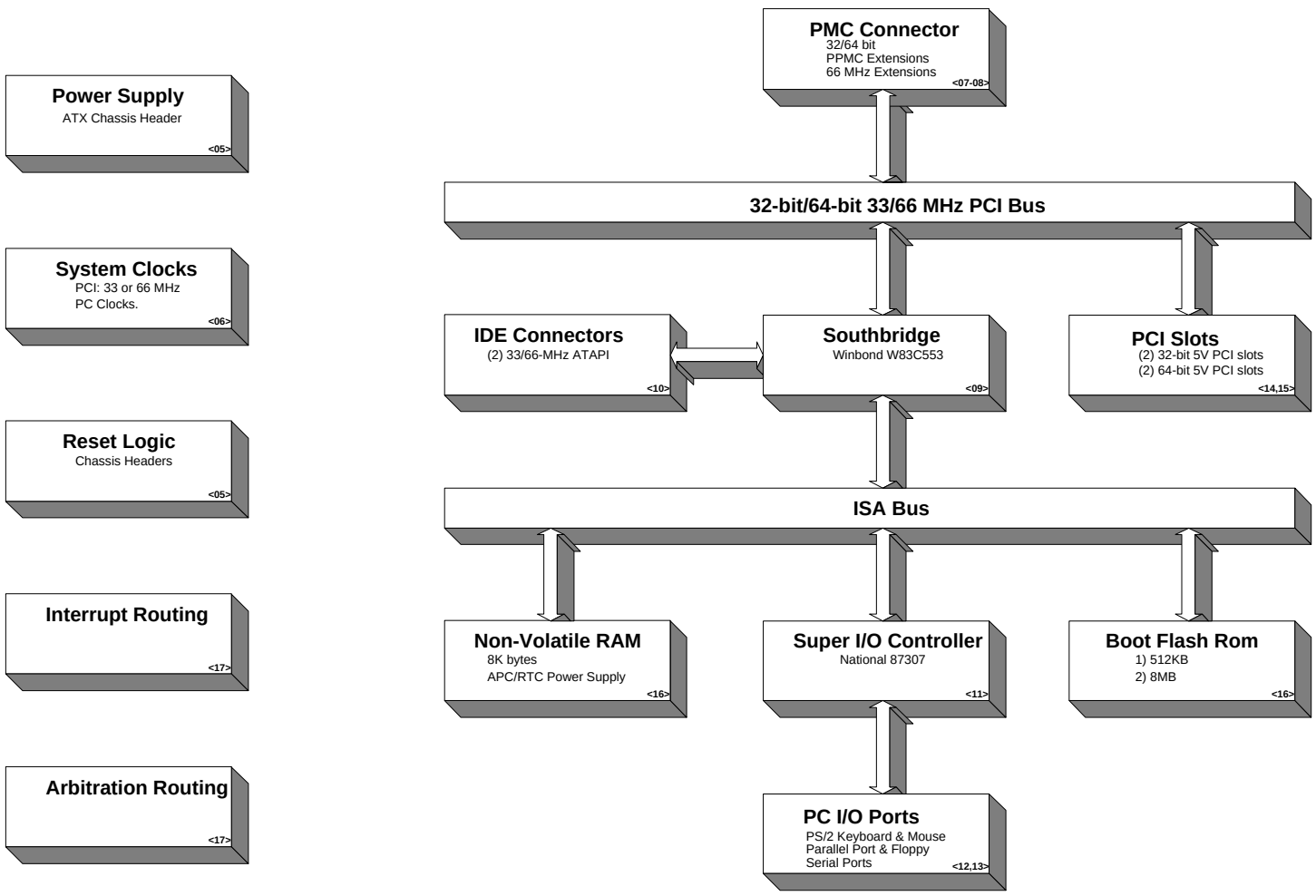
Sandpoint*

Team Sandpoint

Cindy Black	PCB CAD
Ivan Erickson	Program Mgr.
Gary Milliorn	Designer
Tony Saucedo	Components
Joey Tsai	Documentation
Gary Wojcik	Imperial Poobah

REV	DATE	CHANGES
X1	98MAR23	Original
X2	98DEC11	Connector orientation; crosspoint tweaks.
X3	00JUL26	Many changes
X3B	01APR24	Errata updated.

Motorola 6501 William Cannon Blvd. Austin, TX 78735

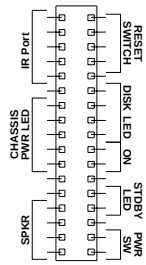


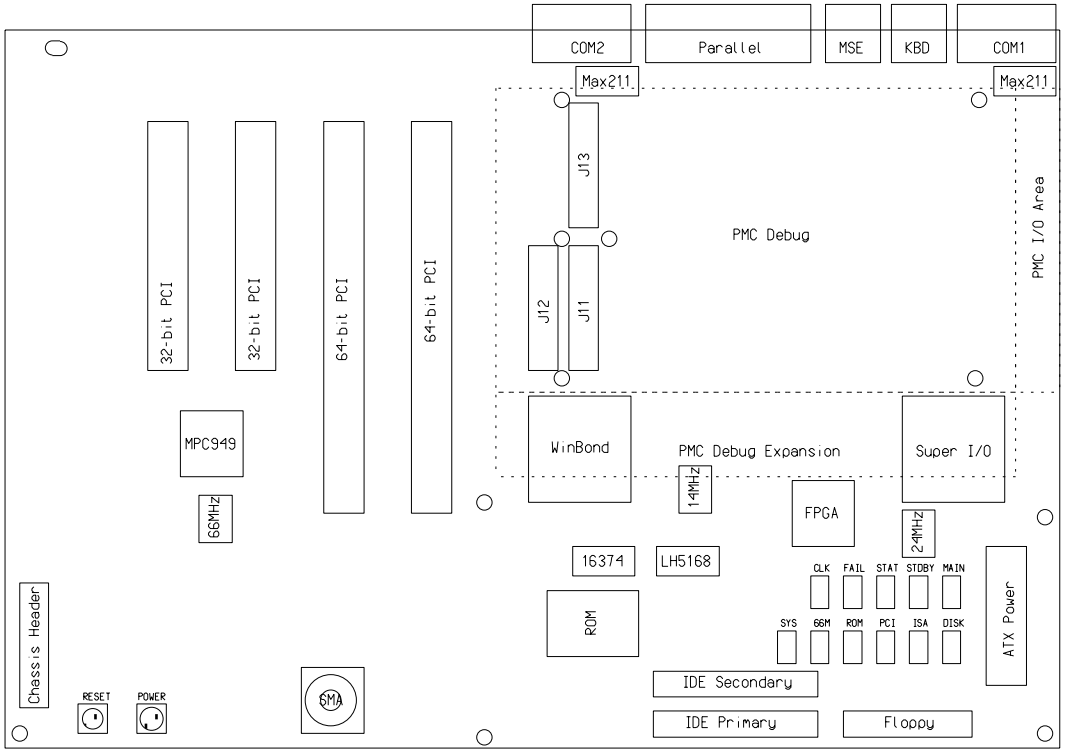
Date Changed: 4/24/2001	Time: 2:17:01 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Block Diagram	Page: 03

Motorola 6501 William Cannon Blvd. Austin, TX 78735

Layout/Routing Instructions

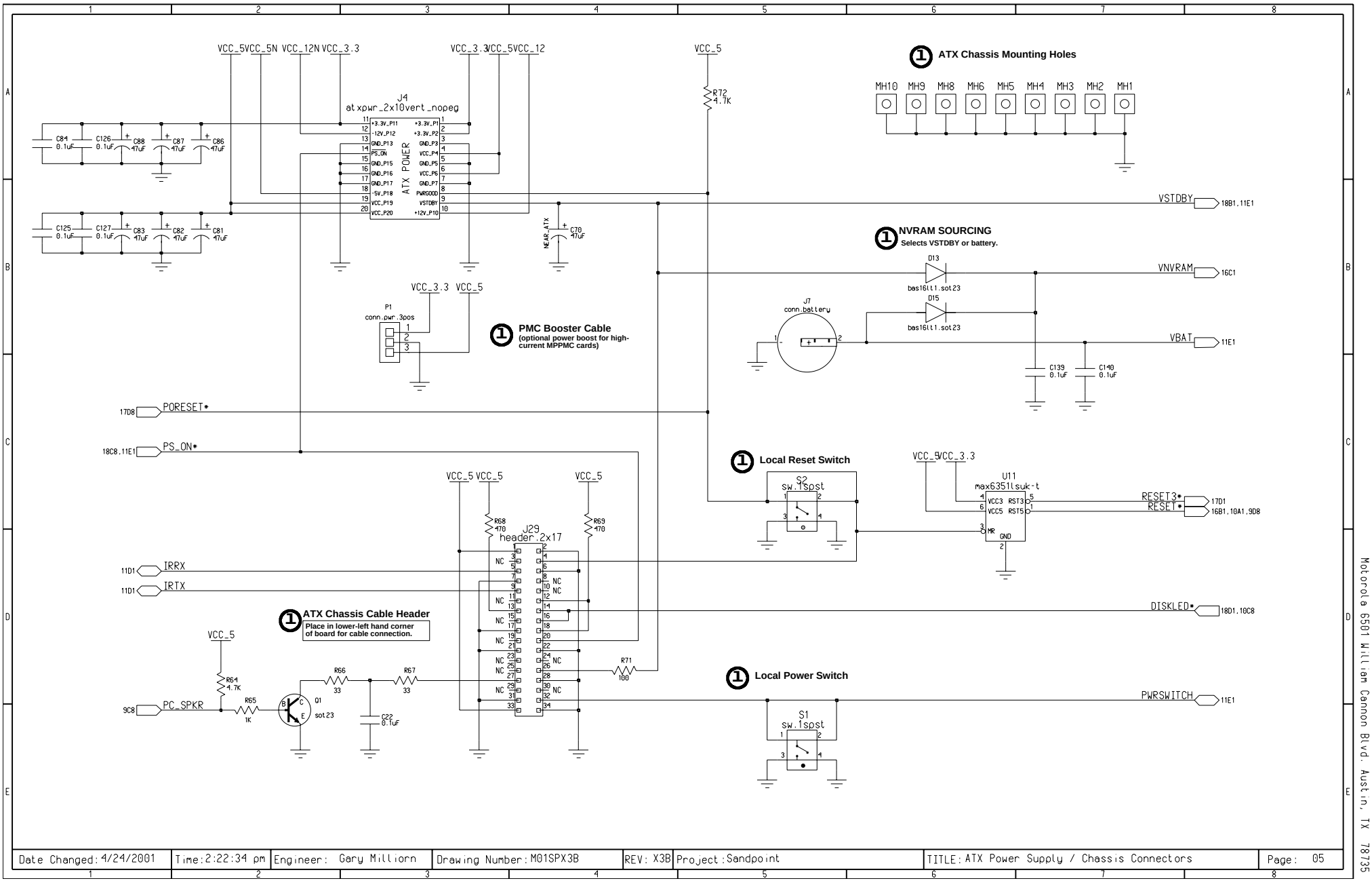
05	Use split power planes for 5V and 3.3V power. Place header in lower-left hand corner of the board (I/O connectors would be in the upper right. Allow clearance around header to allow for silkscreen legends. Label pin groups as shown.
06	Keep series termination resistors near the output pins. Route all PCI clock lengths to equal the WBCLK trace less 2.5" Use heavy traces for power path through filter: +3.3V => VCCO pins & Rxxx/Rxxx Combo => VCCI Pin. Surround MPC972 with 4-6 0.1uF caps to provide good ground-return paths. Keep XTAL1 pin and jumper insanely close.
07	Place PMC at top side of ATX board.
08	"
09	Use equal-length traces on nets DAK(2:0) from WinBond to 'F138.
10	Place series termination resistors near socket.
11	Use very short traces from 32kHz crystal to SuperI/O and to connected components. Allow no other traces to enter or cross the crystal oscillator area. Use 12 mil traces for VBAT and VSTDBY.
12	Place EMI filtering caps and ferrite beads very close to DIN6 and DB25 connectors. Place series resistors for parallel port near DB25 connector.
13	Keep traces very short between RS232 drivers (U1, U2) and DB9 connectors. Use 12 mil traces for +12V and -12V.
14	Place IDSEL resistor near IDSEL pin.
15	Place IDSEL resistor near IDSEL pin.
16	Use 12 mil traces between battery connector and diodes (before and after).
17	No special restrictions.
18	No special restrictions.
19	Recommended placement for status LEDs is under the disk tray area. Place LEDs in order and label with indicated text. Follow ATX chassis specs for ATX mounting hole sizes and plated area allowance.
20	Distribute capacitors as shown, unless otherwise specified.
21	Keep traces as short as possible. Pin swapping within and without of a package is encouraged in order to minimize trace length.





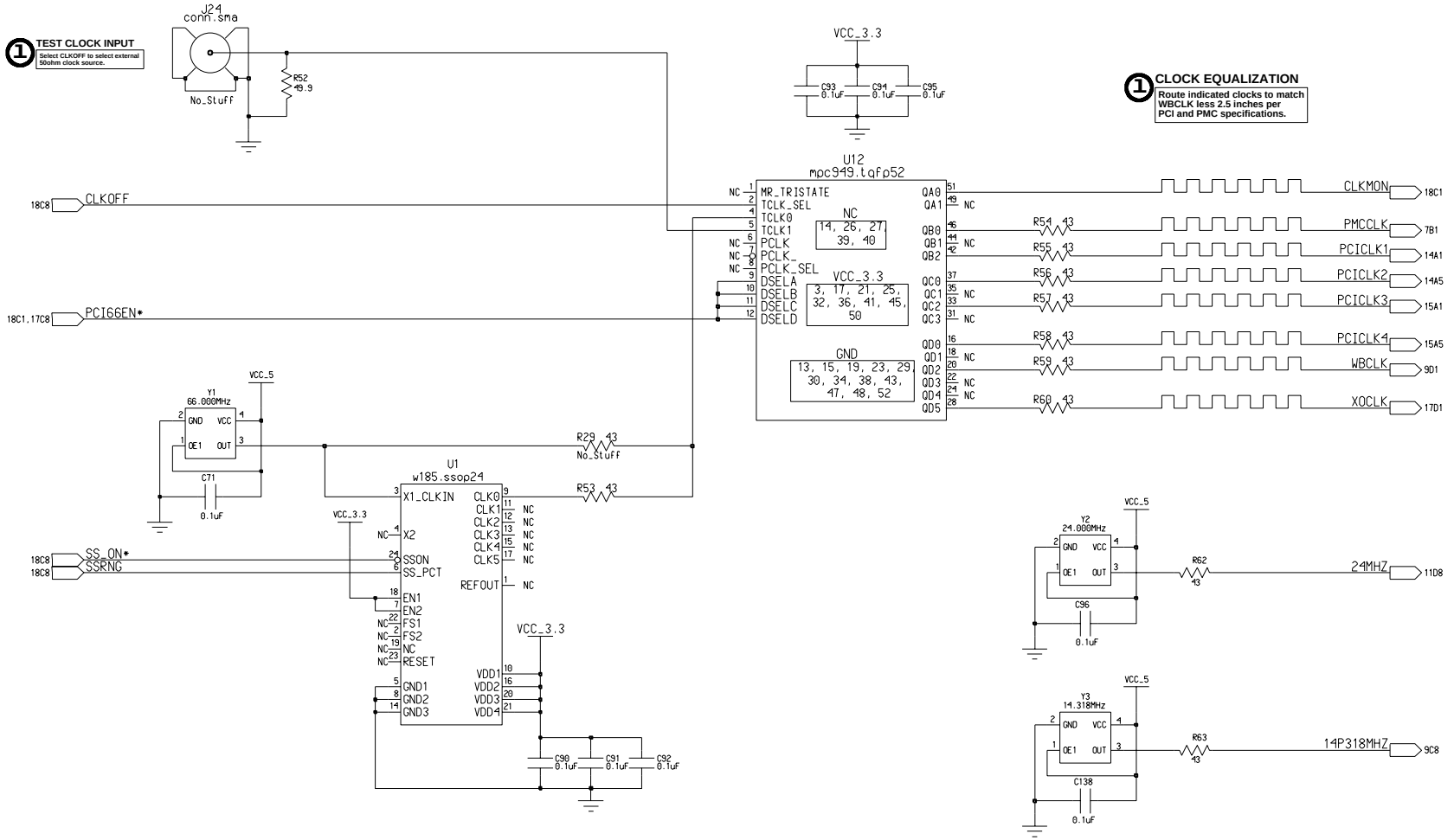
Date Changed: 10/9/2000	Time: 4:19:00 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Placement and Routing Instructions	Page: 04

Motorola 6501 William Cannon Blvd. Austin, TX 78735

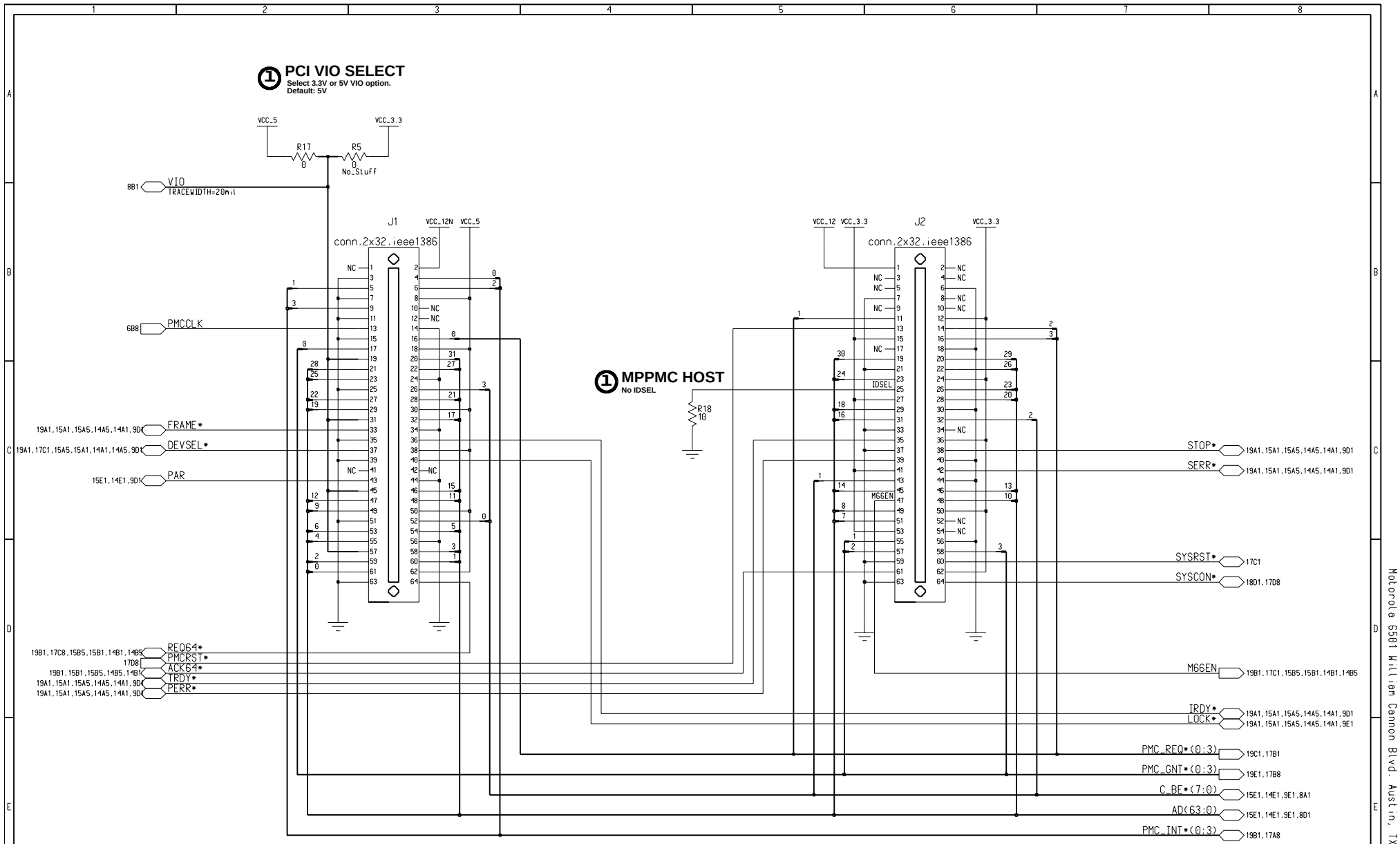


Date Changed: 4/24/2001	Time: 2:22:34 pm	Engineer: Gary Millirorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: ATX Power Supply / Chassis Connectors	Page: 05

Motorola 6501 William Cannon Blvd. Austin, TX 78735

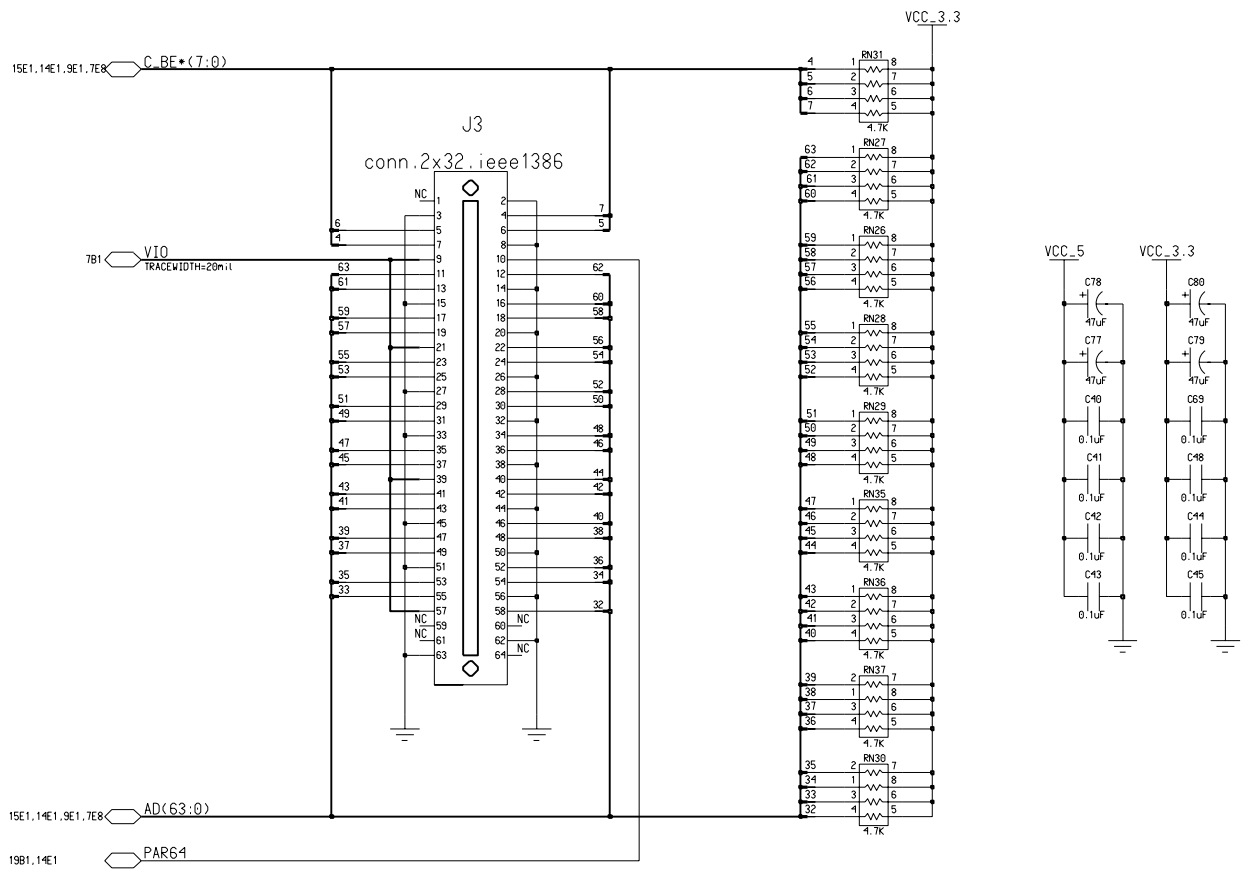


Date Changed: 4/24/2001	Time: 2:22:51 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: System Clock Generation	Page: 06

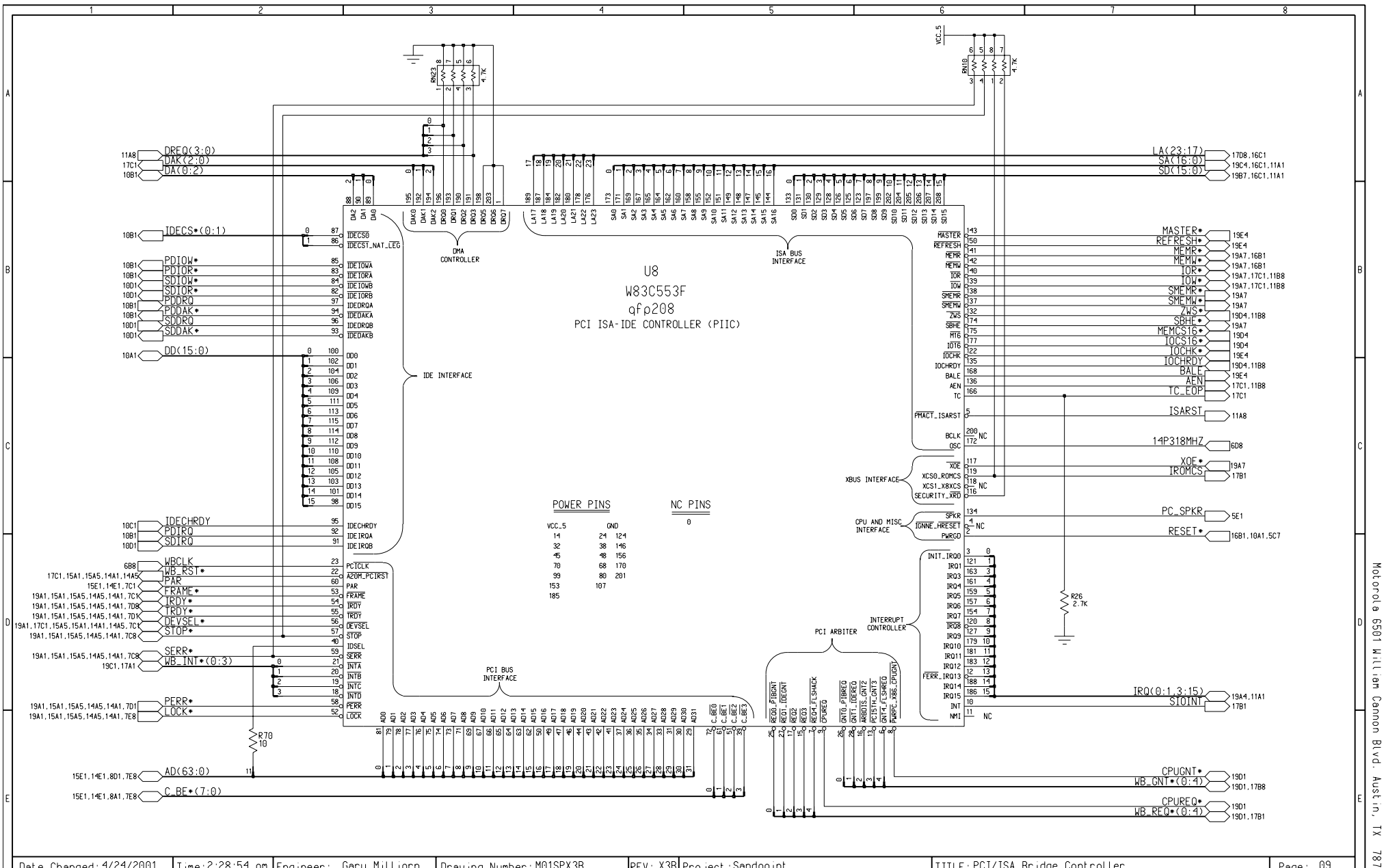


Date Changed: 4/24/2001	Time: 3:28:51 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: PMC Connectors J1 & J2	Page: 07

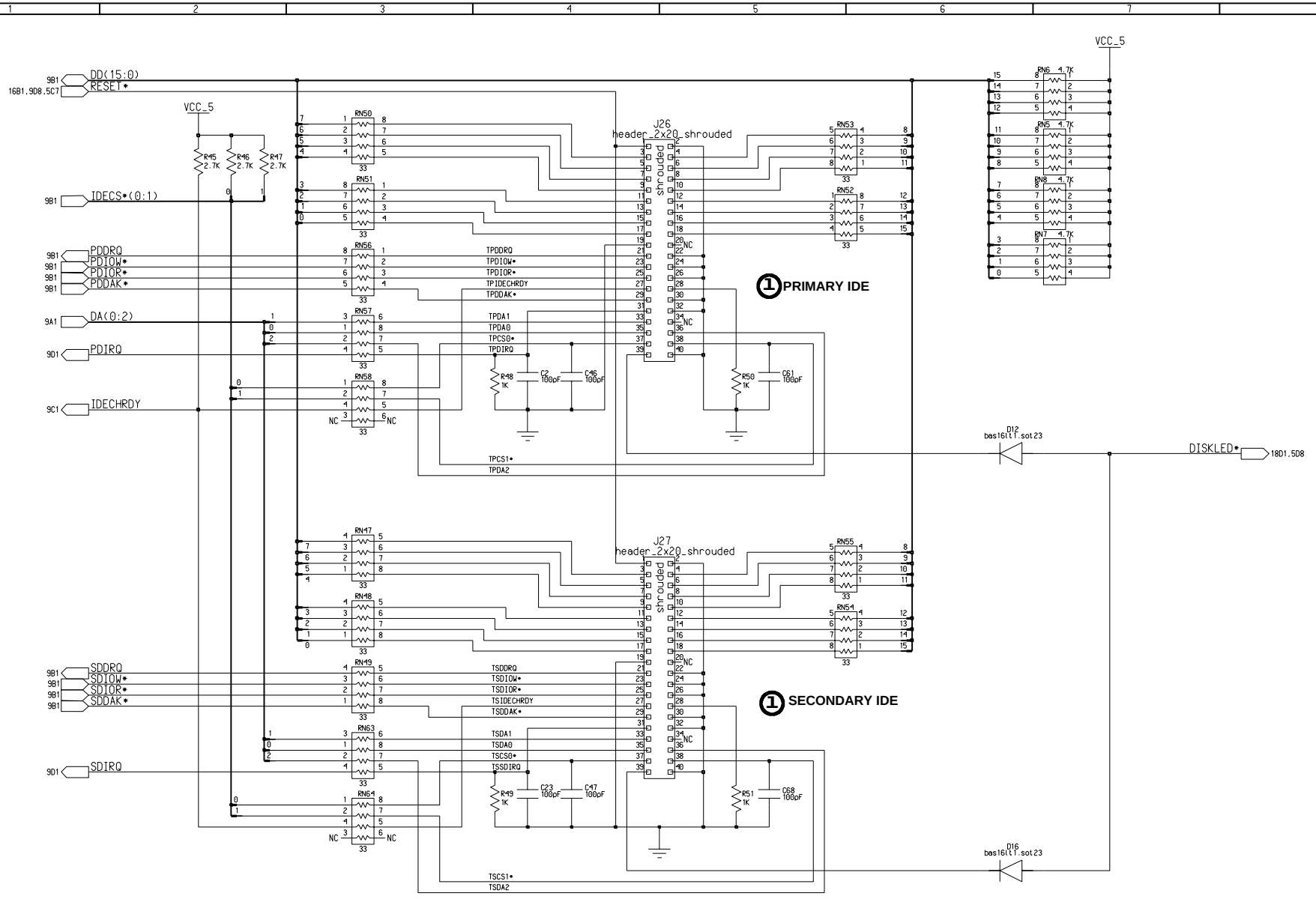
Motorola 6501 William Cannon Blvd. Austin, TX 78735



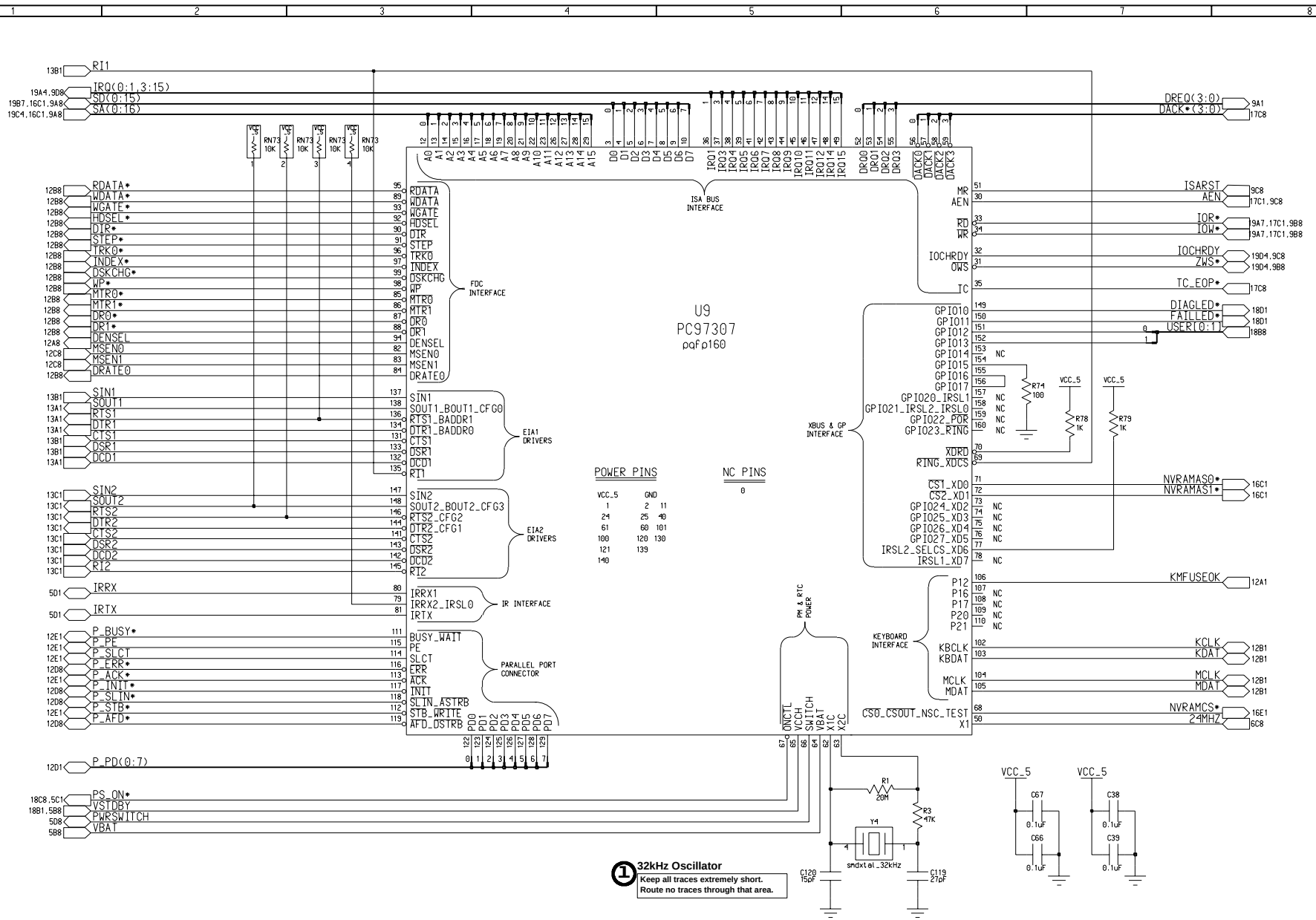
Date Changed: 4/24/2001	Time: 2:28:58 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: 64-bit PMC Connector	Page: 08



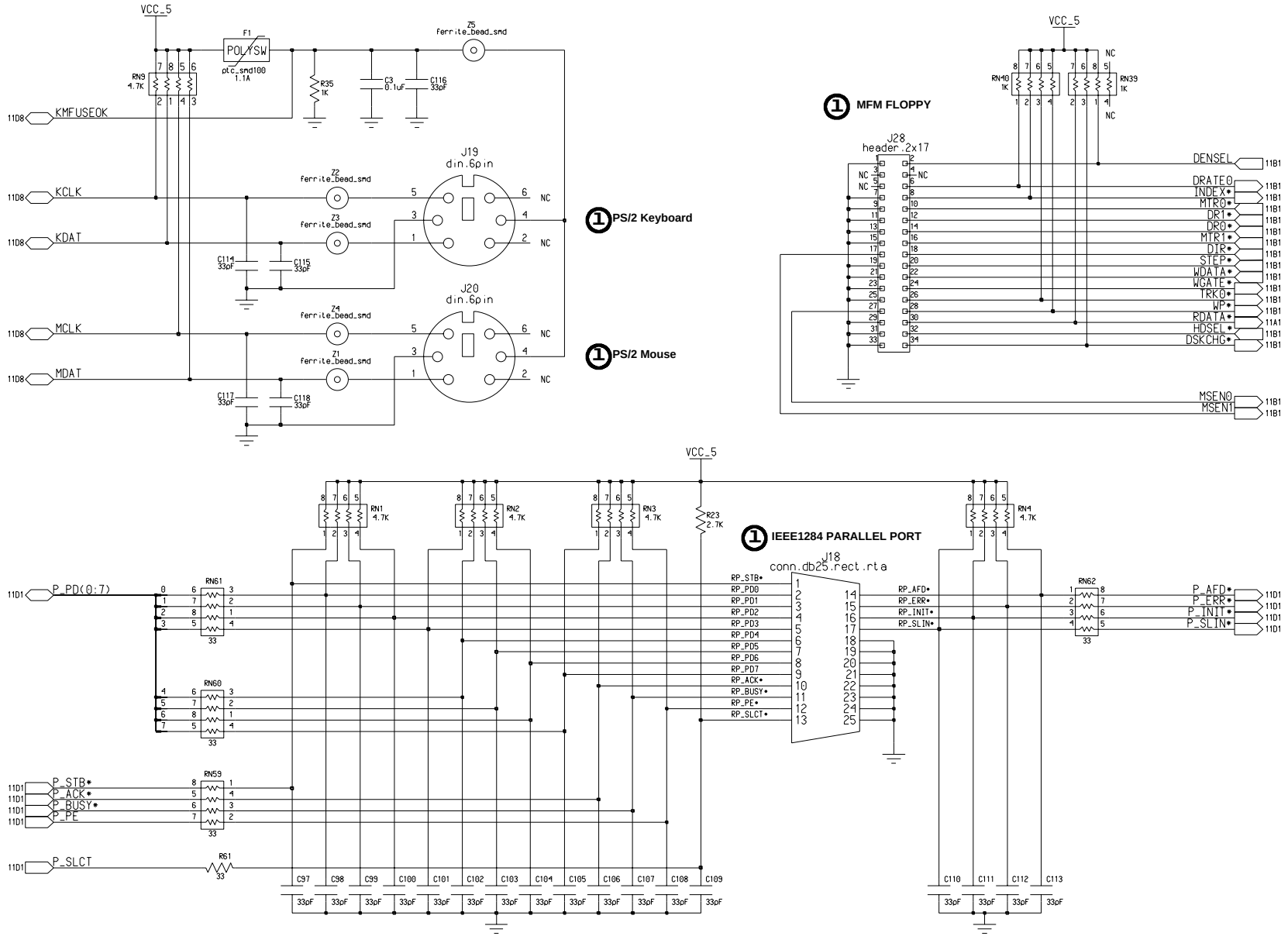
Date Changed: 4/24/2001	Time: 2:28:54 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: PCI/ISA Bridge Controller	Page: 09



Date Changed: 4/24/2001	Time: 2:36:30 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: IDE Termination and Connectors	Page: 10

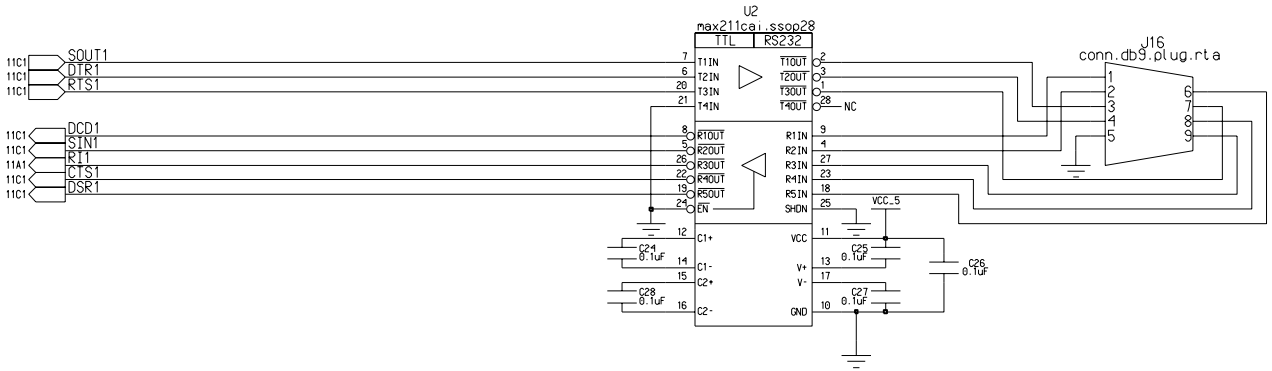


Date Changed: 4/24/2001	Time: 2:36:50 pm	Engineer: Gary Millhorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Super I/O Controller: Floppy, ISA DMA, APC, RTC	Page: 11

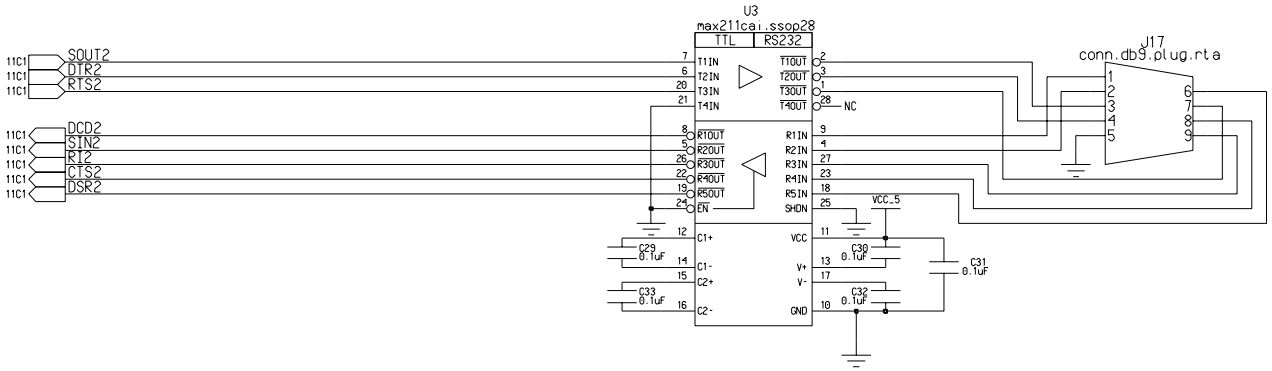


Date Changed: 4/24/2001	Time: 3:44:33 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Keyboard/Mouse/Parallel/MFM Floppy Connectors	Page: 12

Motorola 6501 William Cannon Blvd. Austin, TX 78735

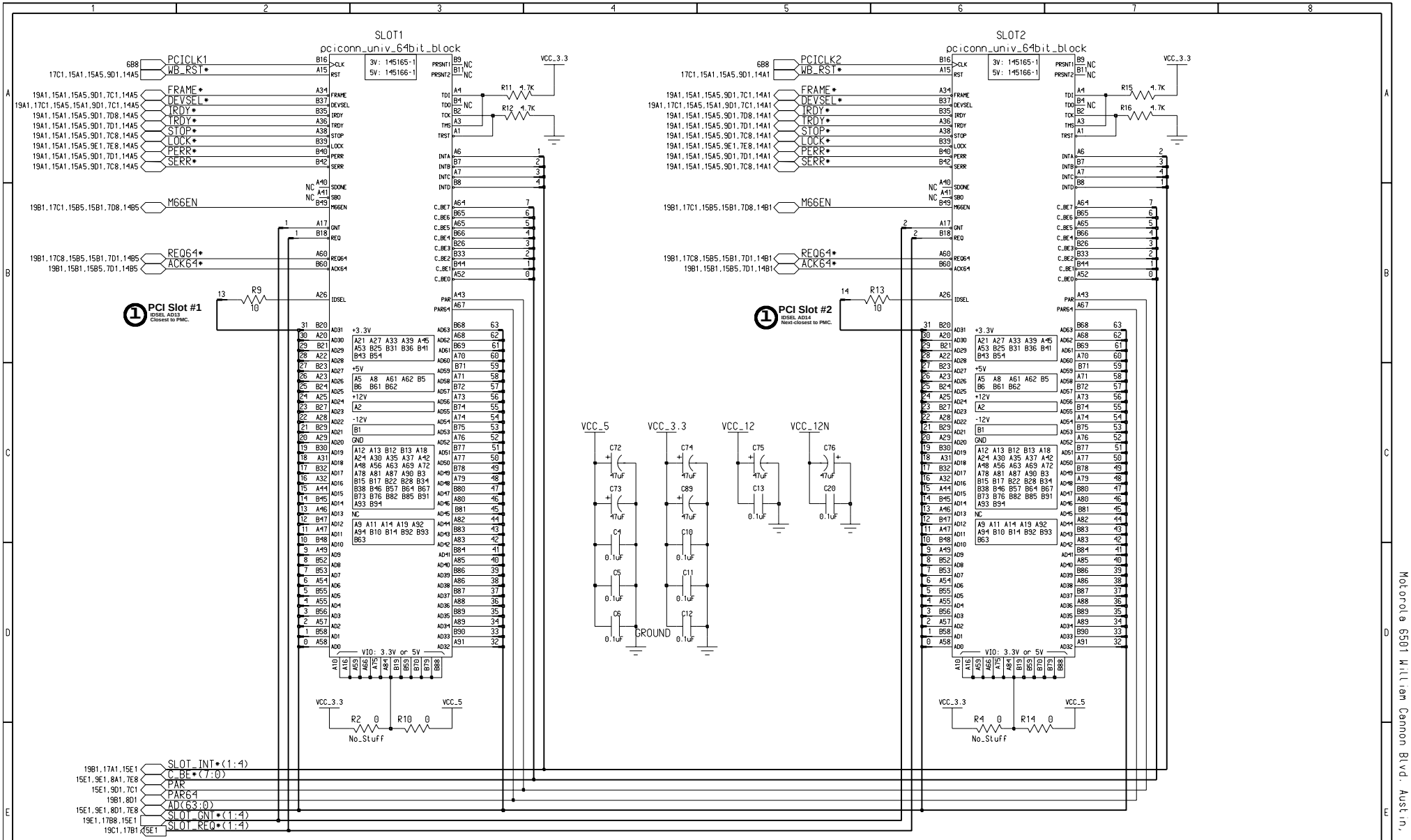


SERIAL PORT #1
COM1, Leftmost (rear view)



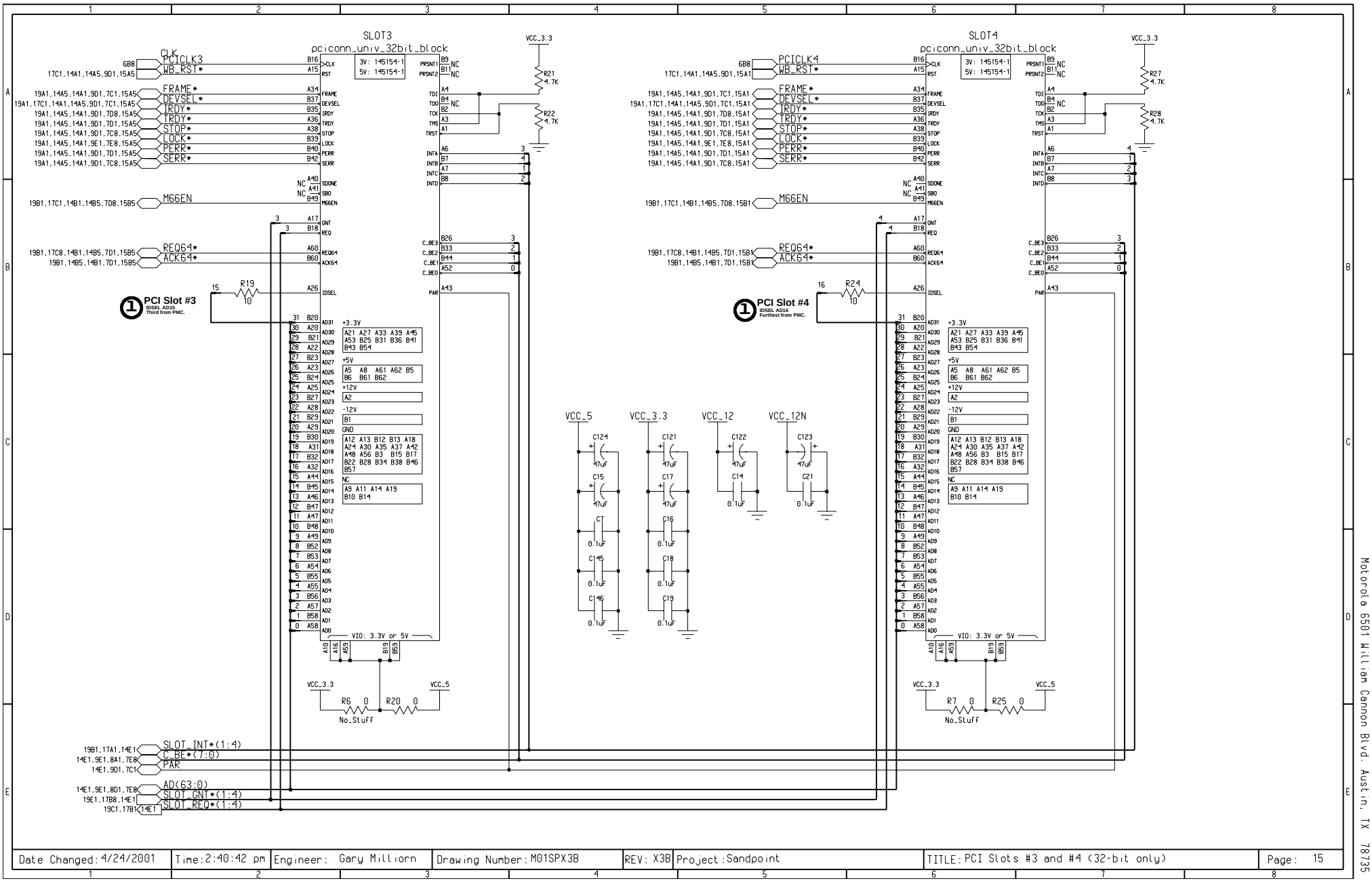
SERIAL PORT #2
COM2, Rightmost (rear view)

Date Changed: 4/24/2001	Time: 2:37:42 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Serial Ports #1 and #2	Page: 13

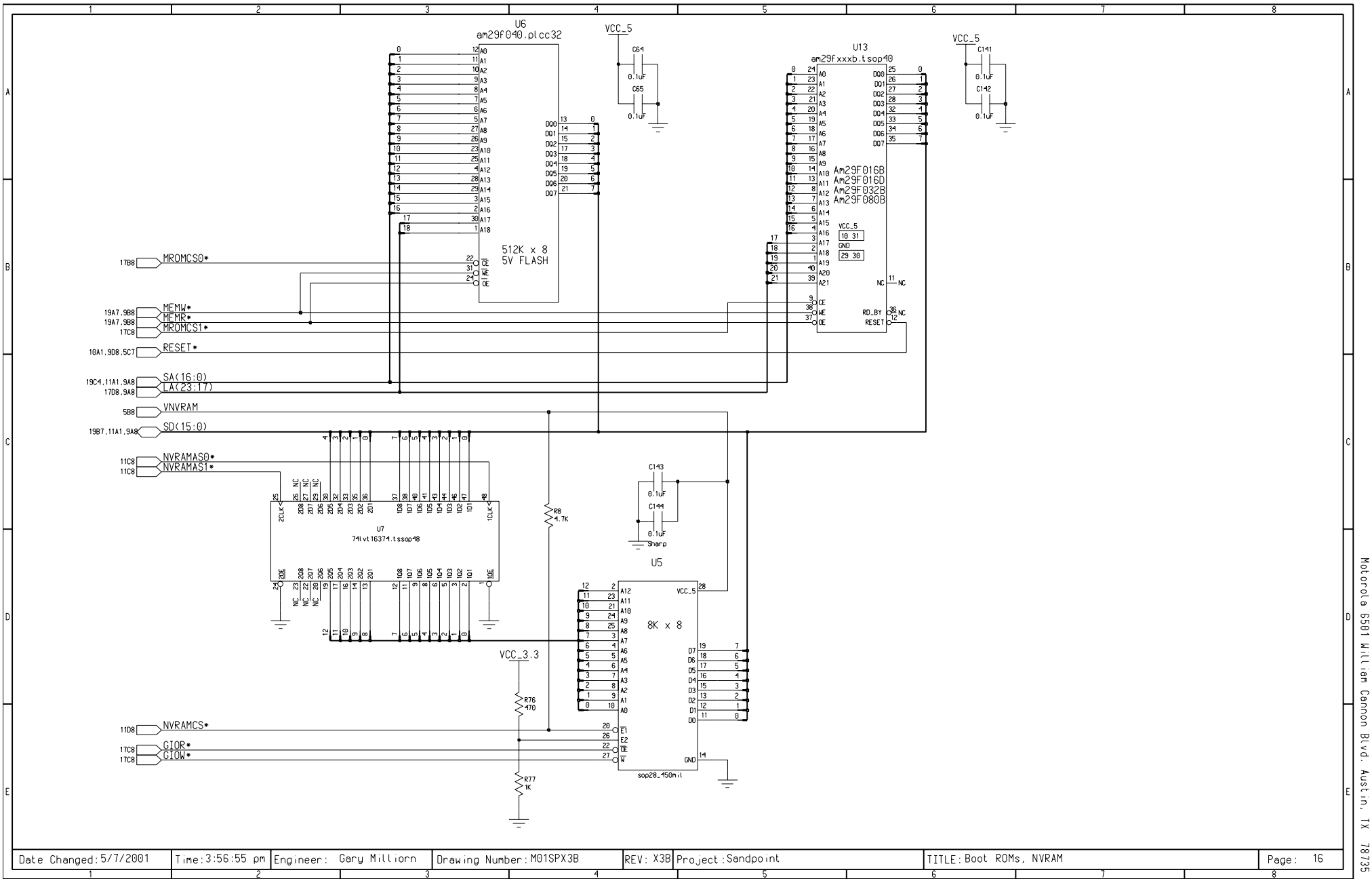


Date Changed: 4/24/2001	Time: 2:40:27 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: PCI Slots #1 and #2 (32/64 bit).	Page: 14

Motorola 6501 William Cannon Blvd. Austin, TX 78735

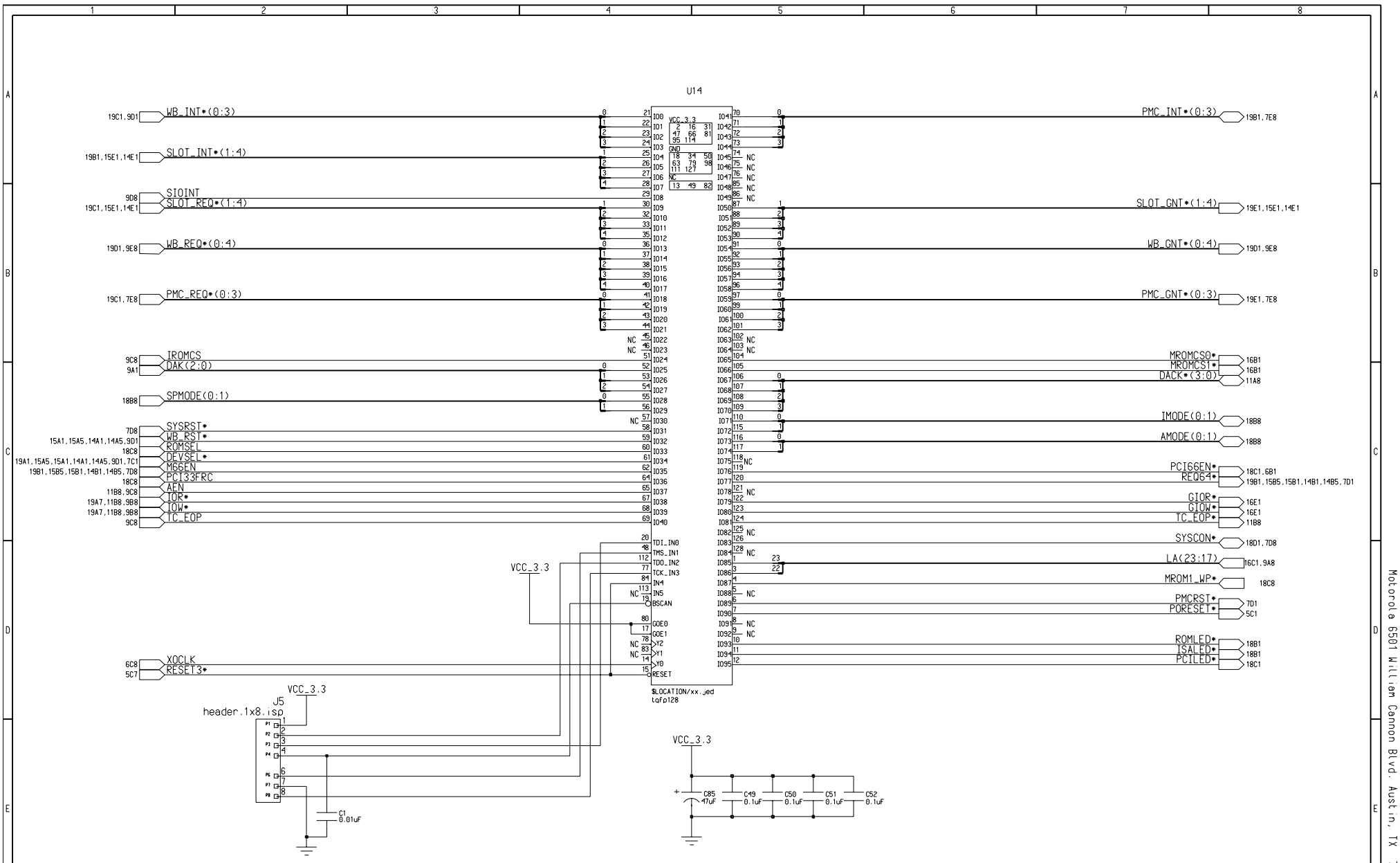


Date Changed: 4/24/2001	Time: 2:40:42 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: PCI Slots #3 and #4 (32-bit only)	Page: 15

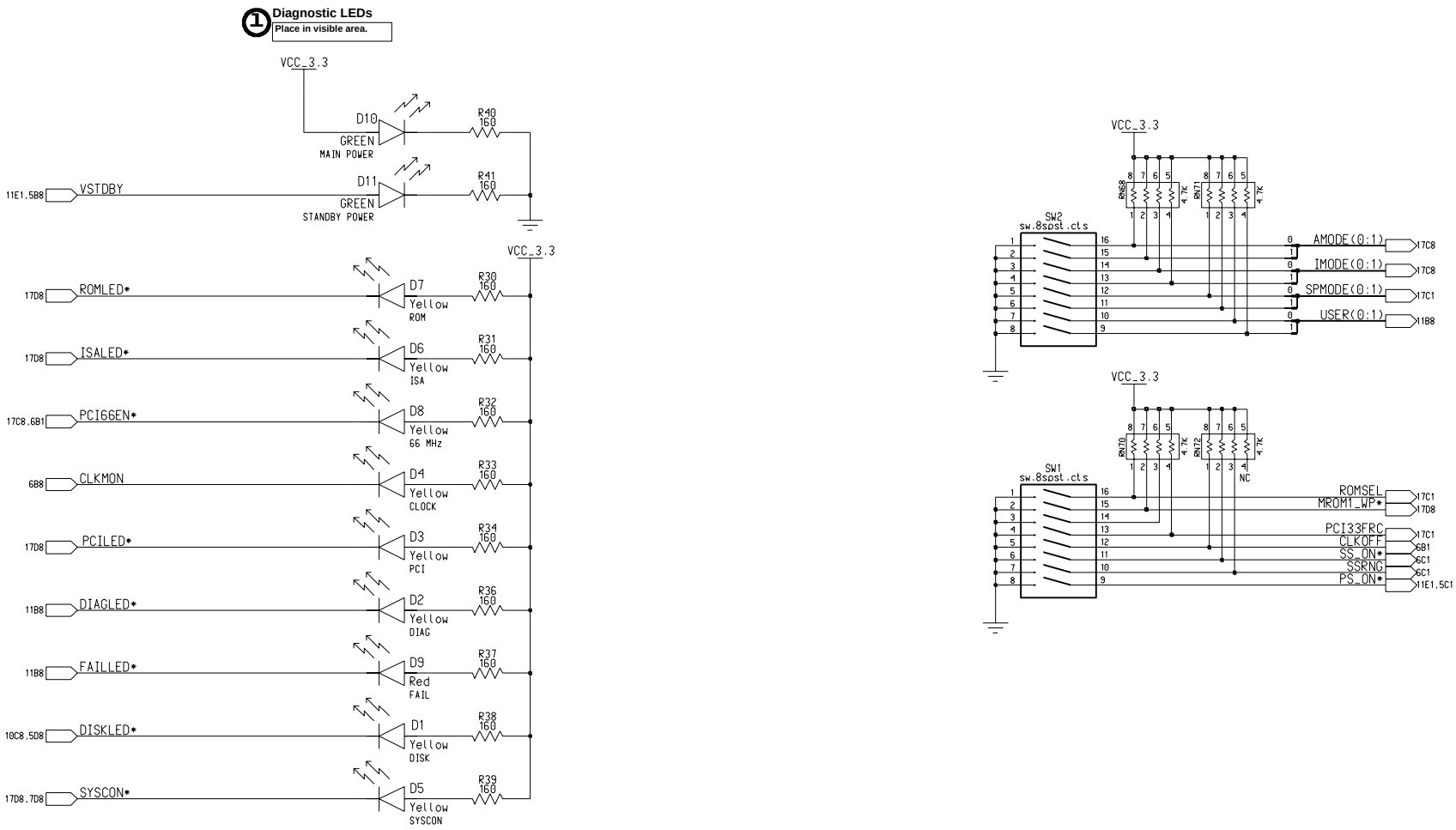


Date Changed: 5/7/2001	Time: 3:56:55 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Boot ROMs, NVRAM	Page: 16

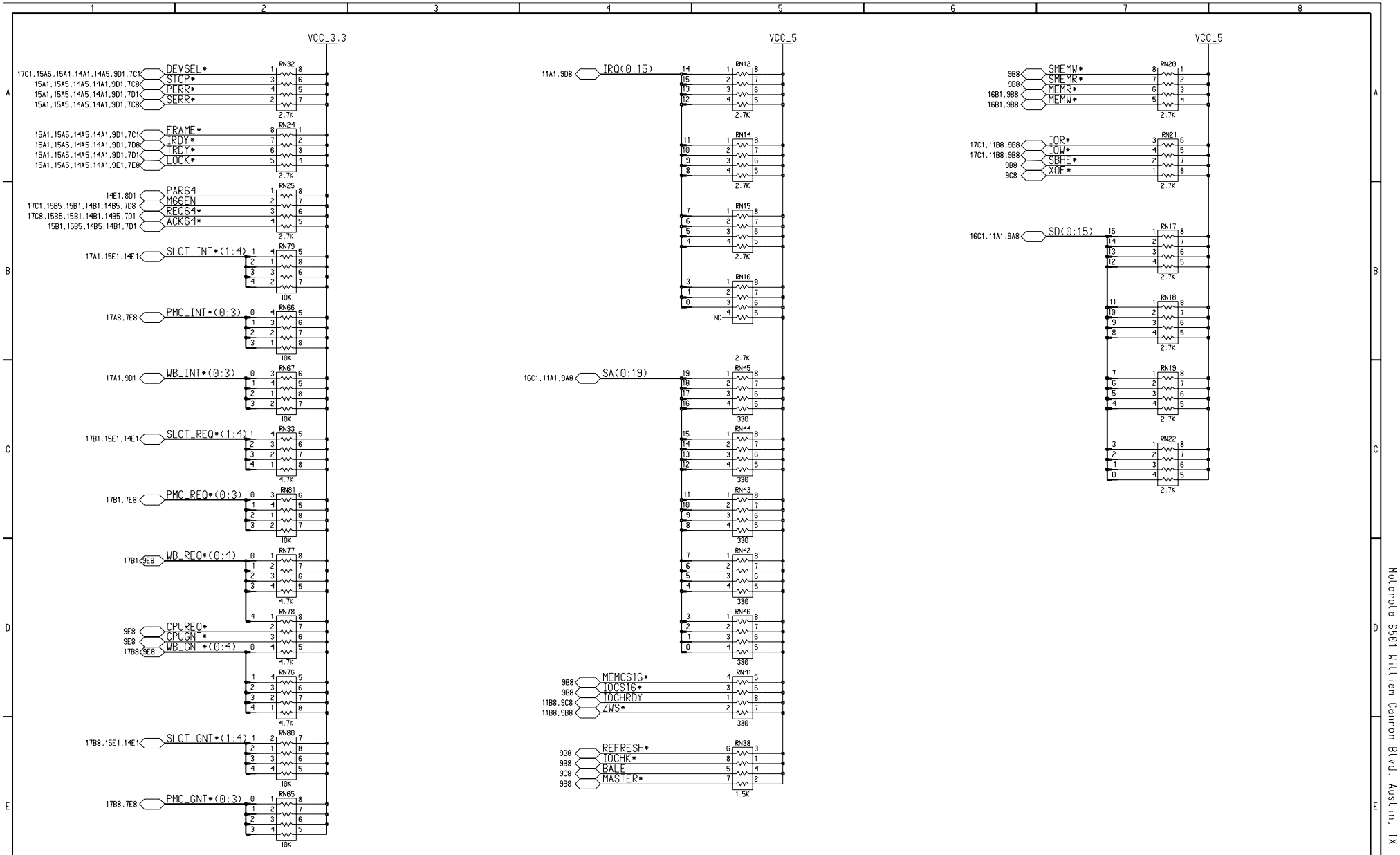
Motorola 6501 William Cannon Blvd. Austin, TX 78735



Date Changed: 4/24/2001	Time: 2:41:11 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Interrupt and Arbitration Expander; Misc Logic	Page: 17



Date Changed: 4/24/2001	Time: 2:41:26 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Misc	Page: 18



Date Changed: 4/24/2001	Time: 2:41:40 pm	Engineer: Gary Milliorn	Drawing Number: M01SPX3B	REV: X3B	Project: Sandpoint	TITLE: Global 5V/3.3V Pullups and Pulldowns	Page: 19

Motorola 6501 William Cannon Blvd. Austin, TX 78735