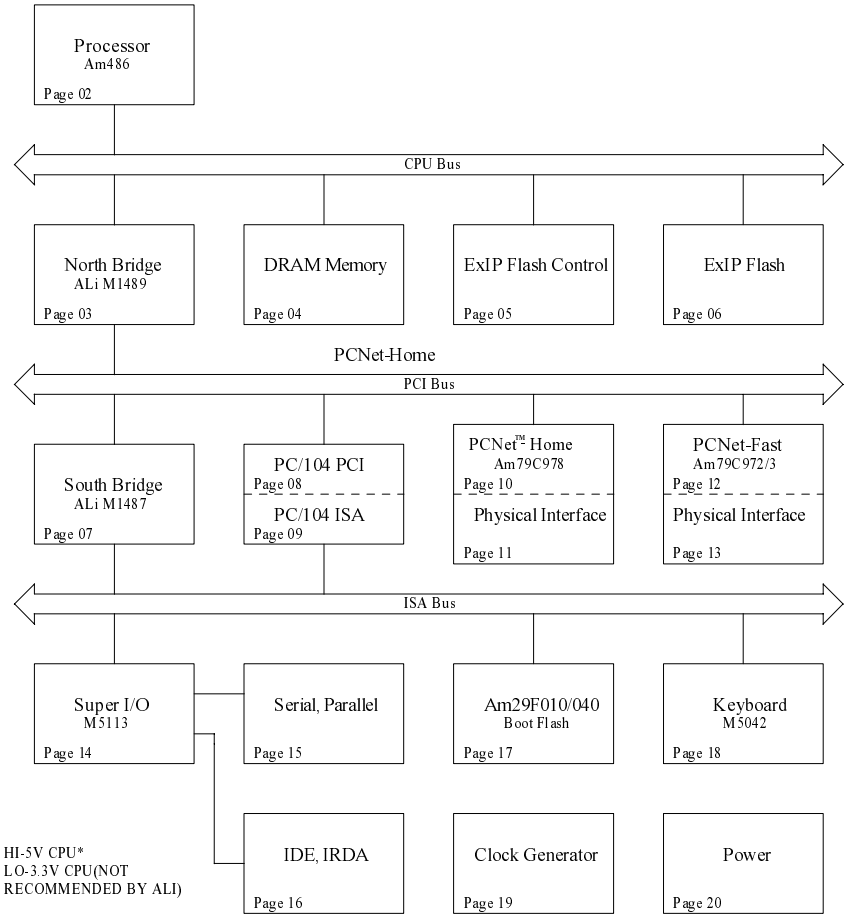
NET486

Am486® Microprocessor Demonstration Board

Revision 01



GW2317 Revision Tracking		
Revision	**Sheet**	**Description**
01	All	Initial Release

M1489 Power-on Configuration	
Signal	Configuration (asterisk is default)
CMPST	HI-PCICLK=CPUCLK* LO-PCICLK=1/2CPUCLK
CLEAROK	HI-L2CSJ LO-DRAM PARITY*
PCIPERR	HI-PCI PERR* LO-MEM BUF DIR
MWE	I-5V CPU* LO-3.3V CPU (NOT RECOMMENDED BY ALI)

M1487 Power-on Configuration	
Signal	Configuration (asterisk is default)
XBUSCS	HI-8BIT BOOT FLASH* LO-16BIT BOOT FLASH
ENRTC	HI-ENABLE RTC* LO-DISABLE RTC
IBCST	HI-ENABLE KBD LO-DISABLE KBD*
CMPST	HI-PCICLK=CPUCLK* LO-PCICLK=1/2CPUCLK
CMPGNT	HI-5V CPU* LO-3.3V CPU(NOT RECOMMENDED BY ALI)
IGNNE	HI-NORMAL OPERATION* LO-TEST OPERATION

PCI Bus Mapping			
Device	Address	Interrupt	Function
0	AD16	INT1/INTB	NOT USED
1	AD17	INT2/INTC	NOT USED
2	AD18	INT3/INTD	NOT USED
3	AD19	INT0/INTA	NOT USED
4	AD20	INT1/INTB	NOT USED
5	AD21	INT2/INTC	AM97C972/3
6	AD22	INT3/INTD	AM97C978
7	AD23	INT0/INTA	PC/104 PLUS
8	AD24	INT1/INTB	PC/104 PLUS
9	AD25	INT2/INTC	PC/104 PLUS
10	AD26	INT3/INTD	PC/104 PLUS

Title: NET486

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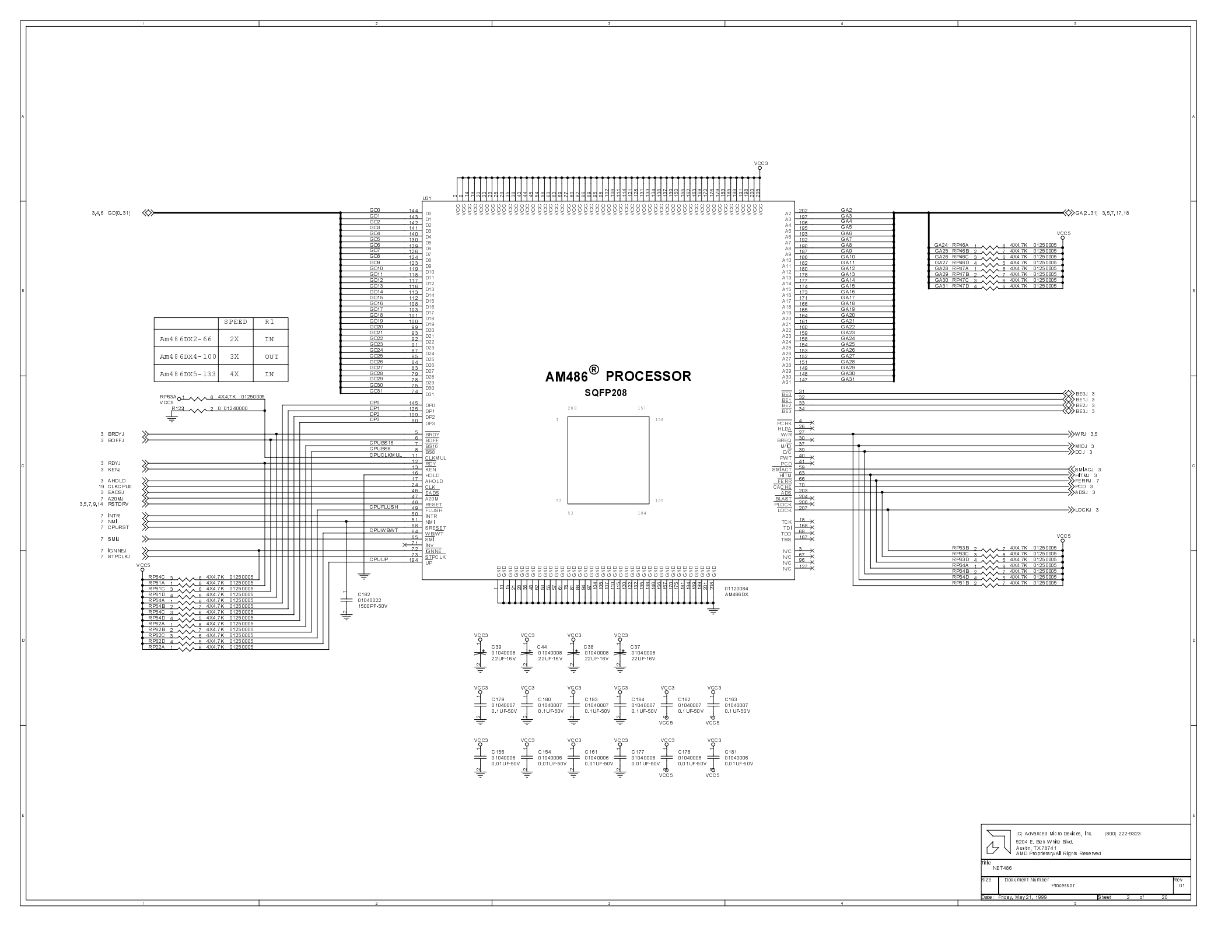

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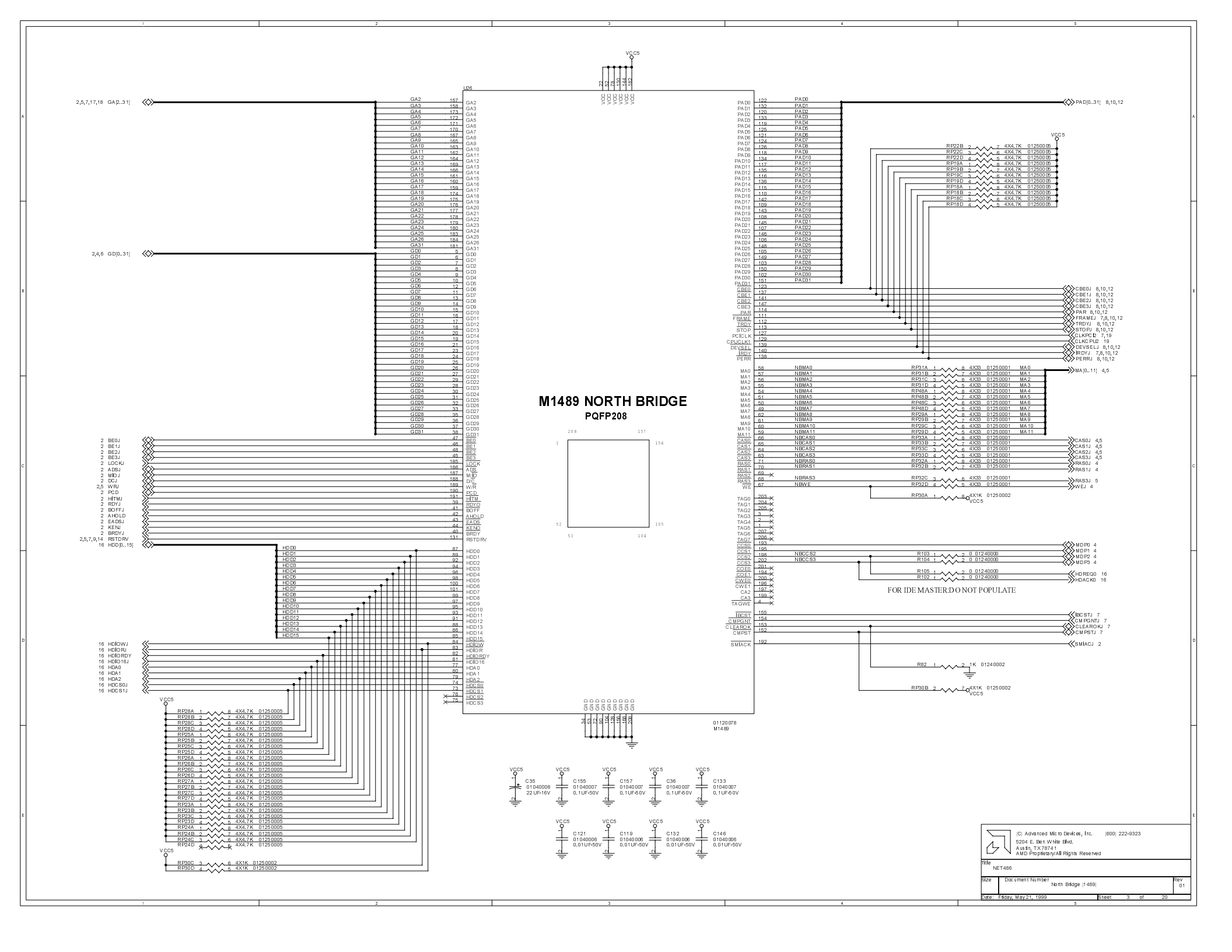

Title	NET486
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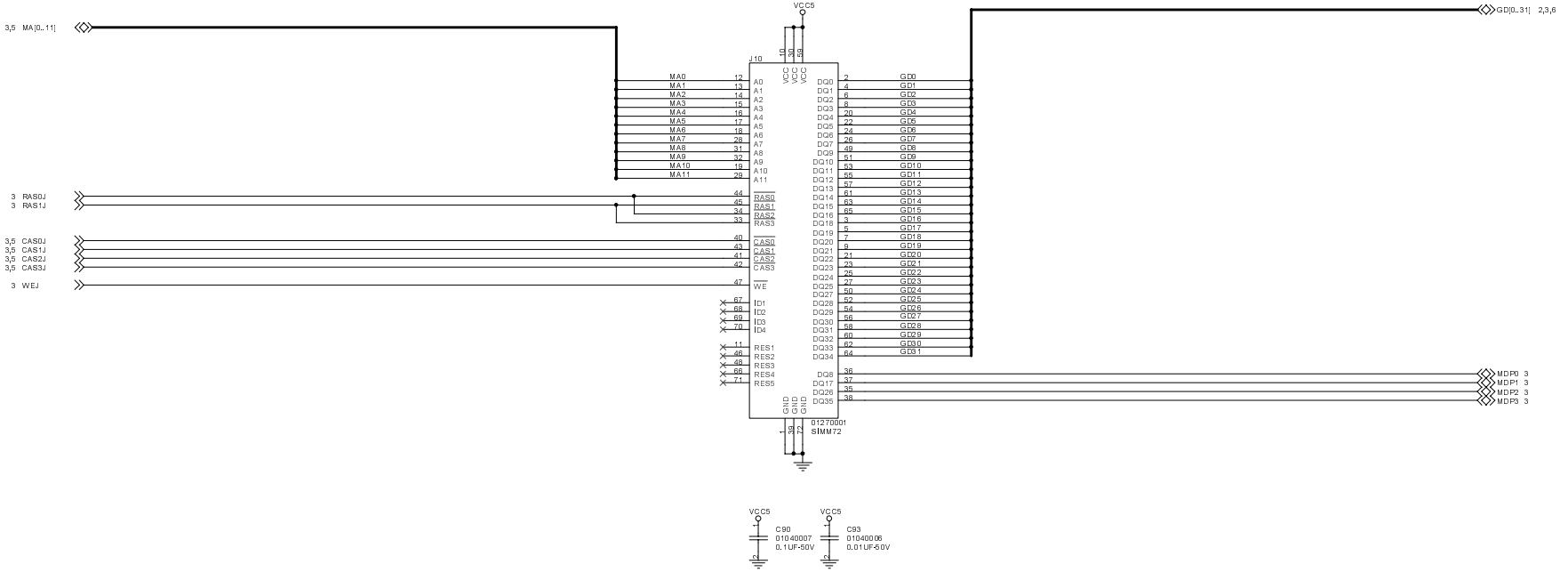
72 PIN SIMM DRAM

5V/16MBIT DRAM TECHNOLOGY



Title	NET486	
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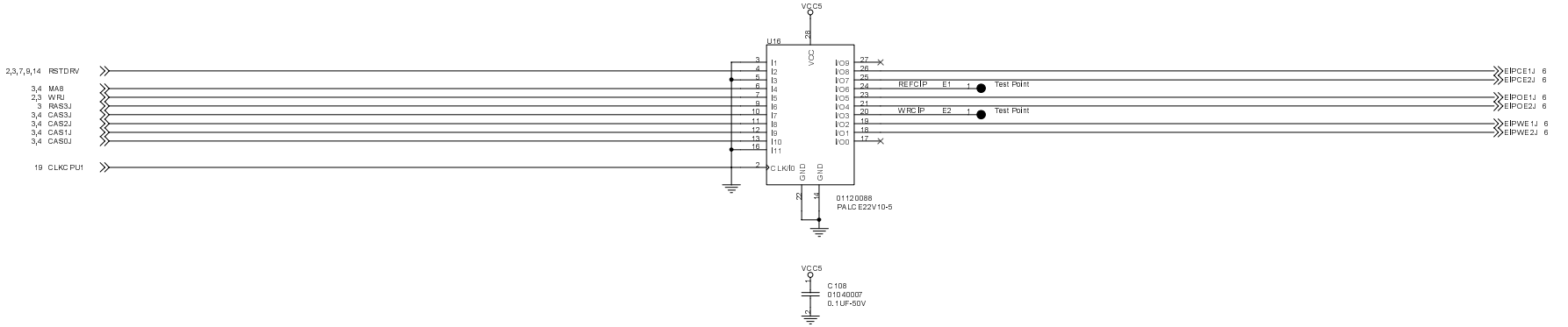
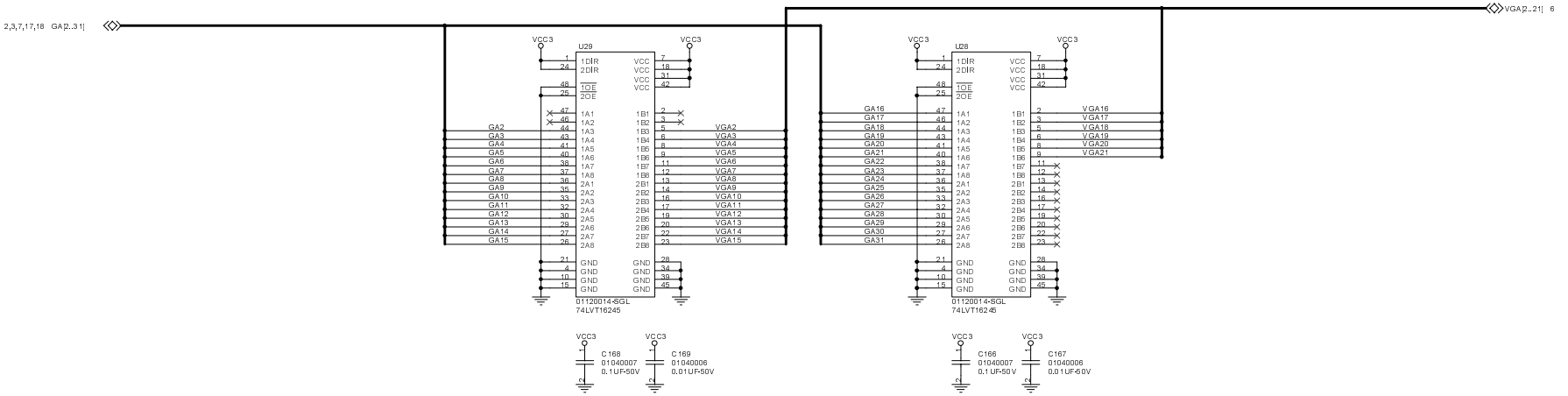
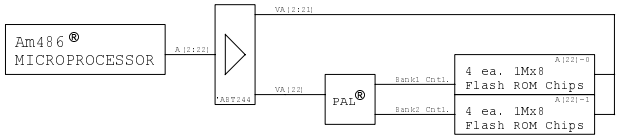
EXECUTE-IN-PLACE FLASH CONTROL



EXECUTE-IN-PLACE FLASH BUFFERING





CPU Address Bit A(22) Used As Flash Bank Select

ExIP Flash |Execute In Place|
Operation:
Makes two banks of 1Mx32 flash appear as one bank of 2Mx32 DRAM |70ns, FPM| to M1489 memory controller
Multiply the flash address by four to determine the CPU address |e.g. flash AAAh is accessed at CPU 2AA8h|
Flash start address moves depending on how much DRAM is installed |e.g. 48Mbytes of dram puts flash start address at 48Mbytes or 3000000h for the first bank of flash and 3400000h for the second bank
Programming:
Program the M1489 for 2Mx8 |11/10| dram architecture and "fast" tmings. Address MA8 |CPU A22| is used as a flash bank select when RAS3 is asserted by 1489 memory controller.
Limitations:
Must access as 32-bit data
Supports burst read or single-beat read
Supports single-beat write only. Back-to-back write cycles are not supported
Compatible with cas-before-ras refresh cycles only
Not accessable from pci bus masters
Flash devices are 29F800-55 configured for byte operation

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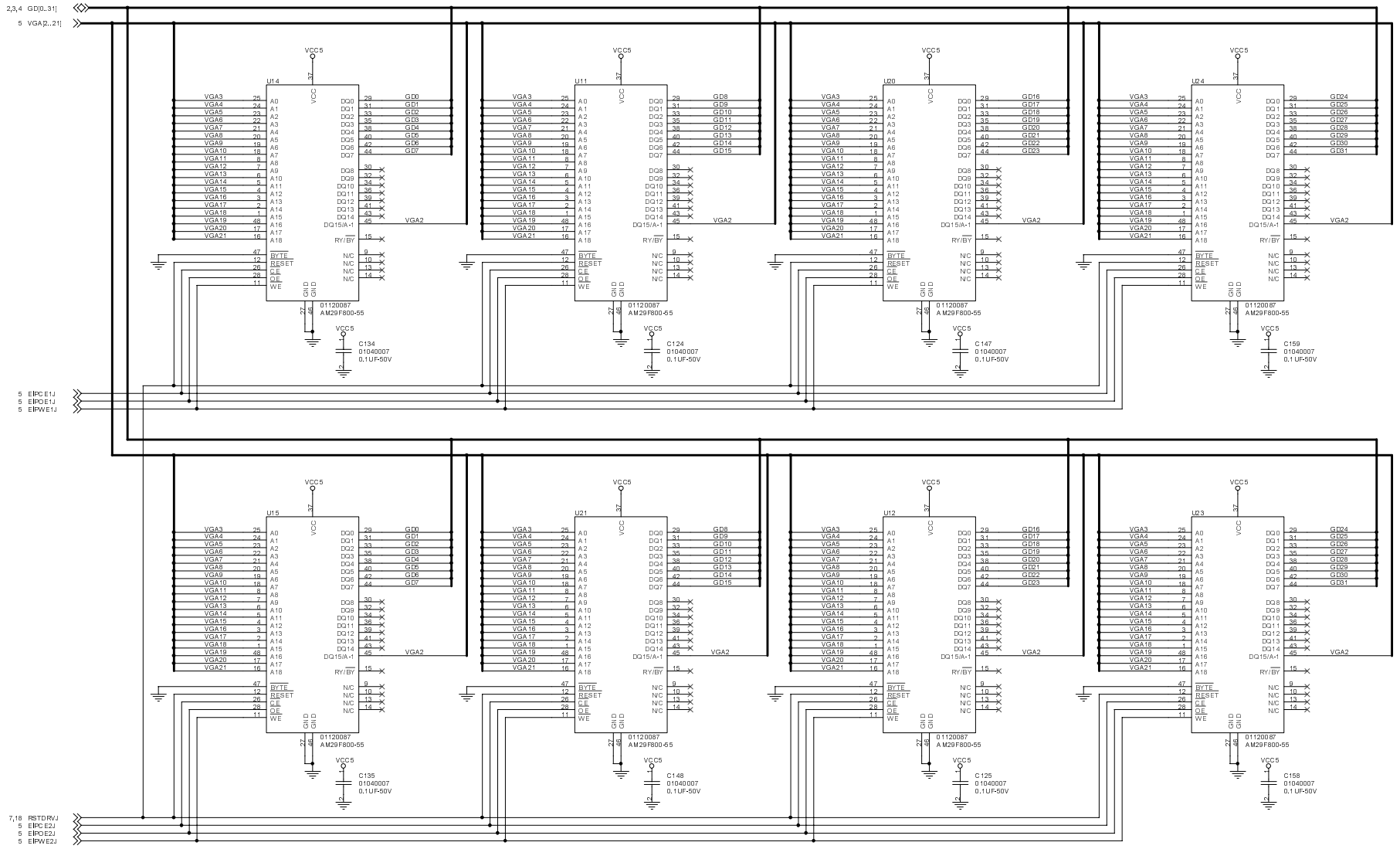
EXECUTE-IN-PLACE FLASH

TSOP48



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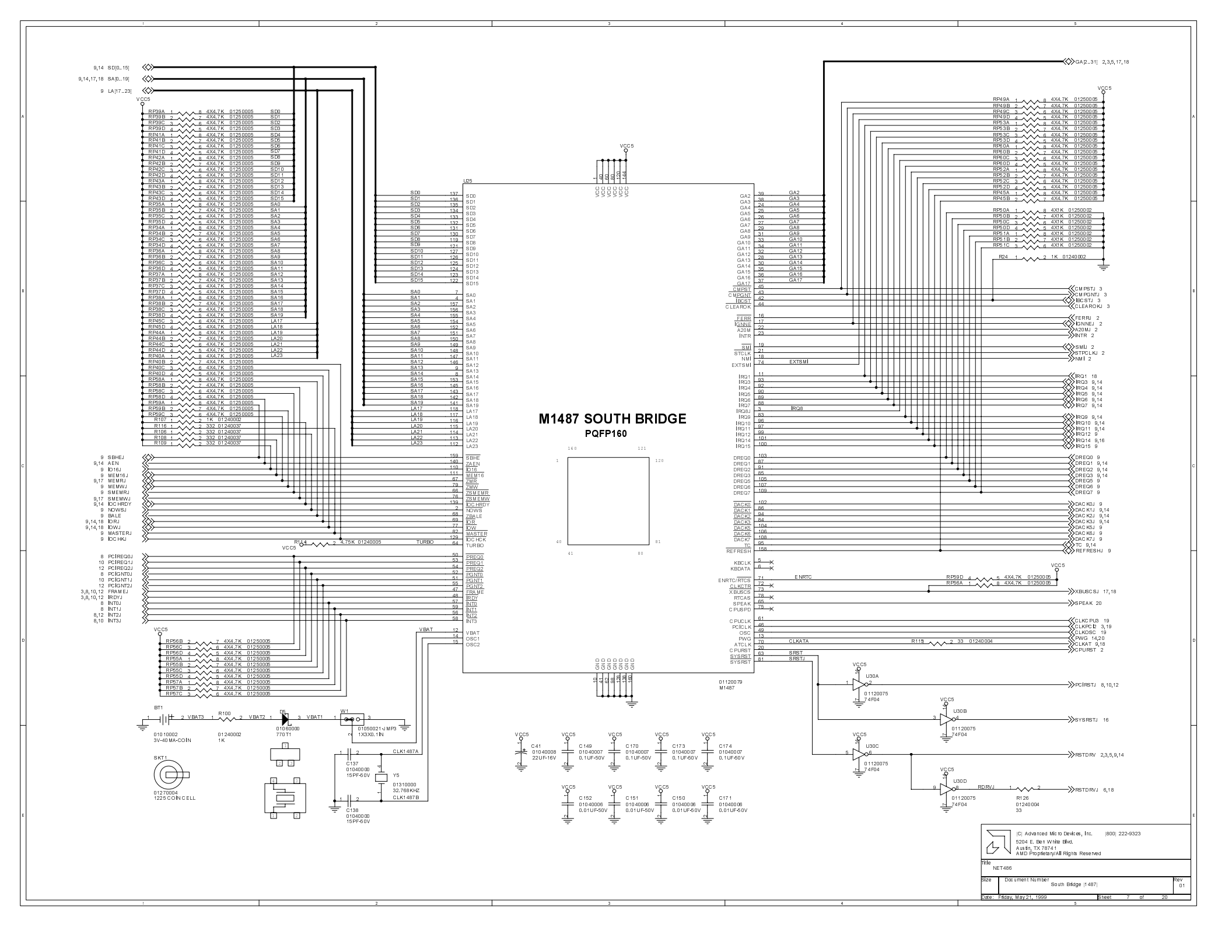
M1487 SOUTH BRIDGE
PQFP160
U25
01120079
M1487
9,14 SD[0..15]
9,14,17,18 SA[0..19]
9 LA[17..23]
GA[2..31] 2,3,5,17,18
VCC5
SBHEJ
AEN
IO16J
MEM16J
MEMRJ
MEMWJ
SMEMRJ
SMEMWJ
IOCHRDY
NOWSJ
BALE
IORJ
IOWJ
MASTERJ
IOCHKJ
PCIREQ0J
PCIREQ1J
PCIREQ2J
PCIGNT0J
PCIGNT1J
PCIGNT2J
FRAMEJ
IRDYJ
INT0J
INT1J
INT2J
INT3J
BT1
01010002
3V-40 MA-COIN
R100
01240002
1K
FB
01060000
770T1
W1
01050021-JMP3
1X3X0.1IN
SKT1
01270004
1225 COIN CELL
Y5
01310000
32.768KHZ
CLK1487A
CLK1487B
C137
01040000
15PF-50V
C138
01040000
15PF-50V
C41
01040008
22UF-16V
C149
01040007
0.1UF-50V
C170
01040007
0.1UF-50V
C173
01040007
0.1UF-50V
C174
01040007
0.1UF-50V
C152
01040006
0.01UF-50V
C151
01040006
0.01UF-50V
C150
01040006
0.01UF-50V
C171
01040006
0.01UF-50V
U30A
U30B
U30C
U30D
01120075
74F04
PCIRSTJ 8,10,12
SYSRSTJ 16
RSTDRV 2,3,5,9,14
RSTDRVJ 6,18
R126
01240004
33
RDRVJ
R119
01240004
33
CLKATA
SRST
SRSTJ
XBUSCSJ 17,18
SPEAK 20
CLKCPU 19
CLKPCI2 3,19
CLKOSC 19
PWG 14,20
CLKAT 9,18
CPURST 2
CMPSTJ 3
CMPGNTJ 3
IBCSTJ 3
CLEAROKJ 3
FERRJ 2
IGNNEJ 2
A20MJ 2
INTR 2
SMIJ 2
STPCLKJ 2
NMI 2
EXTSMI
IRQ1 18
IRQ3 9,14
IRQ4 9,14
IRQ5 9,14
IRQ6 9,14
IRQ7 9,14
IRQ8J
IRQ9 9,14
IRQ10 9,14
IRQ11 9,14
IRQ12 9
IRQ14 9,16
IRQ15 9
DREQ0 9
DREQ1 9,14
DREQ2 9,14
DREQ3 9,14
DREQ5 9
DREQ6 9
DREQ7 9
DACK0J 9
DACK1J 9,14
DACK2J 9,14
DACK3J 9,14
DACK5J 9
DACK6J 9
DACK7J 9
TC 9,14
REFRESHJ 9
ENRTC
KBCLK
KBDATA
RTCAS
SPEAK
CPUSPD
CPUCLK
PCICLK
OSC
PWG
ATCLK
CPURST
SYSRST
REFRESH
TURBO
R114
4.75K 01240005
RP49A 4X4.7K 01250005
RP49B 4X4.7K 01250005
RP49C 4X4.7K 01250005
RP49D 4X4.7K 01250005
RP53A 4X4.7K 01250005
RP53B 4X4.7K 01250005
RP53C 4X4.7K 01250005
RP53D 4X4.7K 01250005
RP50A 4X4.7K 01250005
RP50B 4X4.7K 01250005
RP50C 4X4.7K 01250005
RP50D 4X4.7K 01250005
RP52A 4X4.7K 01250005
RP52B 4X4.7K 01250005
RP52C 4X4.7K 01250005
RP52D 4X4.7K 01250005
RP45A 4X4.7K 01250005
RP45B 4X4.7K 01250005
RP50A 4X1K 01250002
RP50B 4X1K 01250002
RP50C 4X1K 01250002
RP50D 4X1K 01250002
RP51A 4X1K 01250002
RP51B 4X1K 01250002
RP51C 4X1K 01250002
RZ4 1K 01240002
RP59D 4X4.7K 01250005
RP56A 4X4.7K 01250005
RP56B 4X4.7K 01250005
RP56C 4X4.7K 01250005
RP56D 4X4.7K 01250005
RP55A 4X4.7K 01250005
RP55B 4X4.7K 01250005
RP55C 4X4.7K 01250005
RP55D 4X4.7K 01250005
RP57A 4X4.7K 01250005
RP57B 4X4.7K 01250005
RP57C 4X4.7K 01250005
RP39A 4X4.7K 01250005
RP39B 4X4.7K 01250005
RP39C 4X4.7K 01250005
RP39D 4X4.7K 01250005
RP41A 4X4.7K 01250005
RP41B 4X4.7K 01250005
RP41C 4X4.7K 01250005
RP41D 4X4.7K 01250005
RP42A 4X4.7K 01250005
RP42B 4X4.7K 01250005
RP42C 4X4.7K 01250005
RP42D 4X4.7K 01250005
RP43A 4X4.7K 01250005
RP43B 4X4.7K 01250005
RP43C 4X4.7K 01250005
RP43D 4X4.7K 01250005
RP35A 4X4.7K 01250005
RP35B 4X4.7K 01250005
RP35C 4X4.7K 01250005
RP35D 4X4.7K 01250005
RP34A 4X4.7K 01250005
RP34B 4X4.7K 01250005
RP34C 4X4.7K 01250005
RP34D 4X4.7K 01250005
RP36A 4X4.7K 01250005
RP36B 4X4.7K 01250005
RP36C 4X4.7K 01250005
RP36D 4X4.7K 01250005
RP37A 4X4.7K 01250005
RP37B 4X4.7K 01250005
RP37C 4X4.7K 01250005
RP37D 4X4.7K 01250005
RP38A 4X4.7K 01250005
RP38B 4X4.7K 01250005
RP38C 4X4.7K 01250005
RP38D 4X4.7K 01250005
RP45C 4X4.7K 01250005
RP45D 4X4.7K 01250005
RP44A 4X4.7K 01250005
RP44B 4X4.7K 01250005
RP44C 4X4.7K 01250005
RP44D 4X4.7K 01250005
RP40A 4X4.7K 01250005
RP40B 4X4.7K 01250005
RP40C 4X4.7K 01250005
RP40D 4X4.7K 01250005
RP58A 4X4.7K 01250005
RP58B 4X4.7K 01250005
RP58C 4X4.7K 01250005
RP58D 4X4.7K 01250005
RP59A 4X4.7K 01250005
RP59B 4X4.7K 01250005
RP59C 4X4.7K 01250005
R107 1K 01240002
R116 332 01240037
R106 332 01240037
R108 332 01240037
R109 332 01240037
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Size
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South Bridge |1487|
Rev
01
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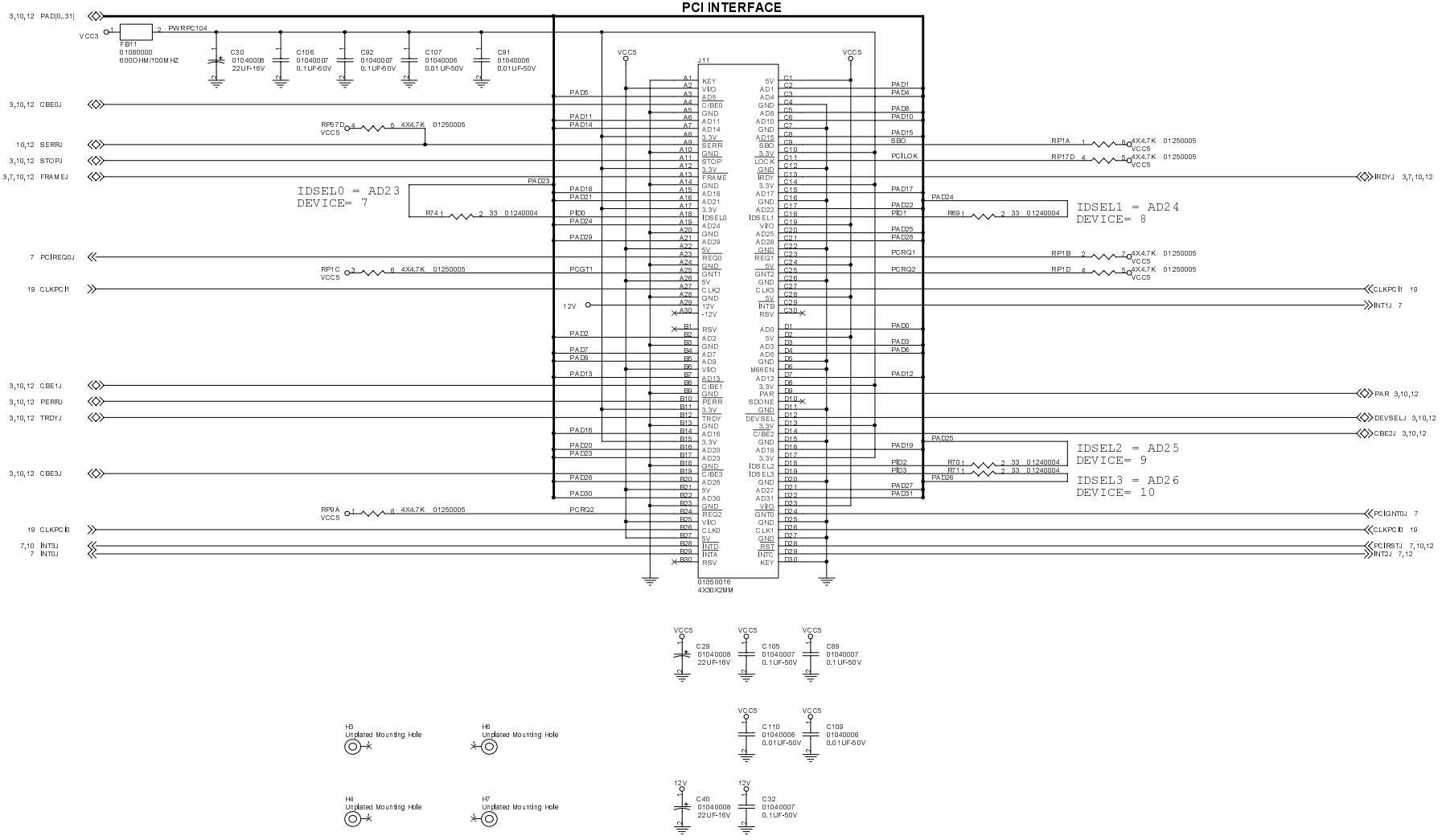
PC/104 PLUS

PCI INTERFACE



H3 Unplated Mounting Hole

H6 Unplated Mounting Hole

H4 Unplated Mounting Hole

H7 Unplated Mounting Hole

REFER TO LAYOUT NOTES FOR LOCATION OF PC/104 PLUS MOUNTING HOLES. HOLES ARE NOT PLATED. HOLES ARE 0.125 INCH DIAMETER WITH A 0.250 INCH COMPRESSION RING.

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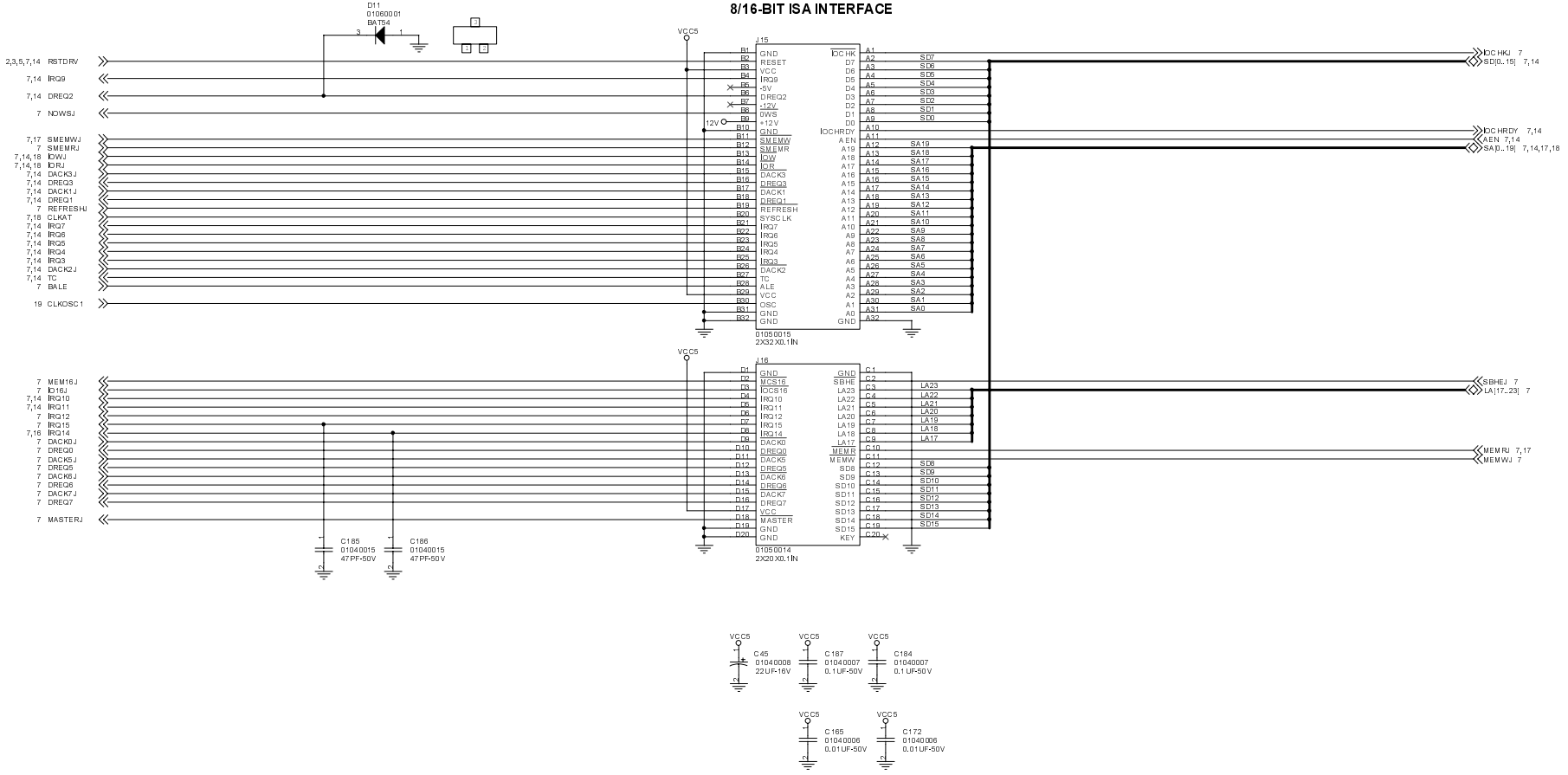
PC/104 PLUS

8/16-BIT ISA INTERFACE



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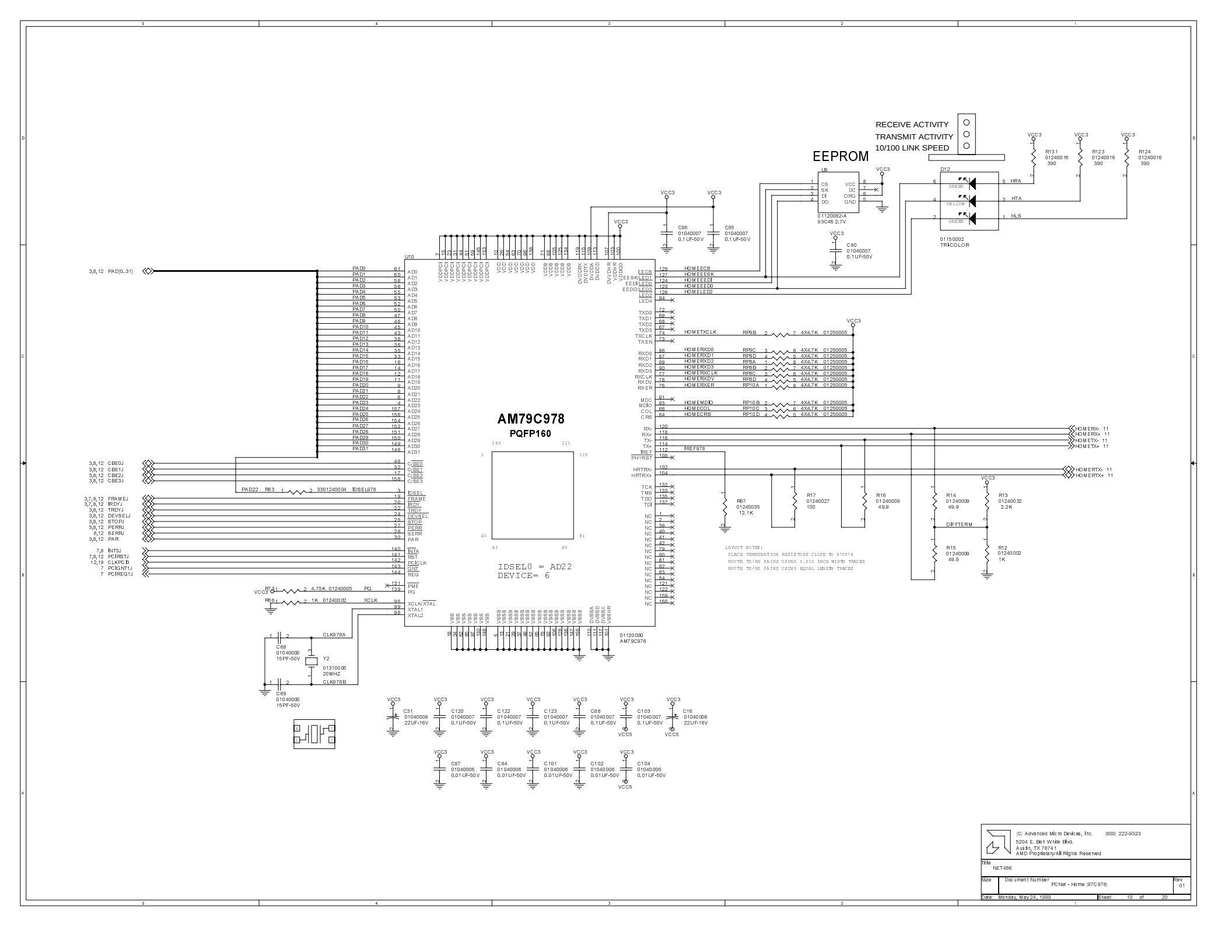
AM79C978
PQFP160
EEPROM
RECEIVE ACTIVITY
TRANSMIT ACTIVITY
10/100 LINK SPEED
IDSEL0 = AD22
DEVICE= 6
LAYOUT NOTES:
PLACE TERMINATION RESISTORS CLOSE TO 97C978
ROUTE TX/RX PAIRS USING 0.015 INCH WIDTH TRACES
ROUTE TX/RX PAIRS USING EQUAL LENGTH TRACES
01120080
AM79C978
01120062-A
93C46 2.7V
01150002
TRICOLOR
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PCNet - Home |97C978|
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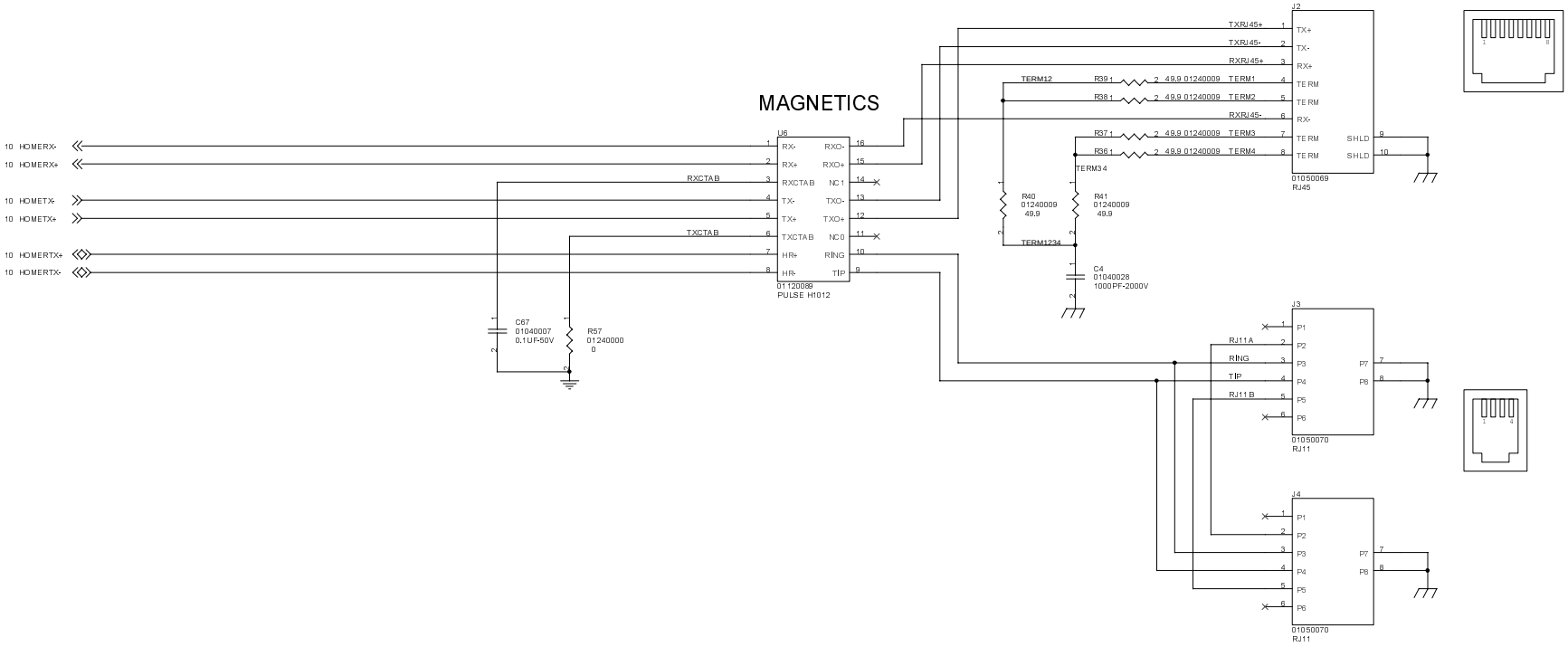

Title: NET486

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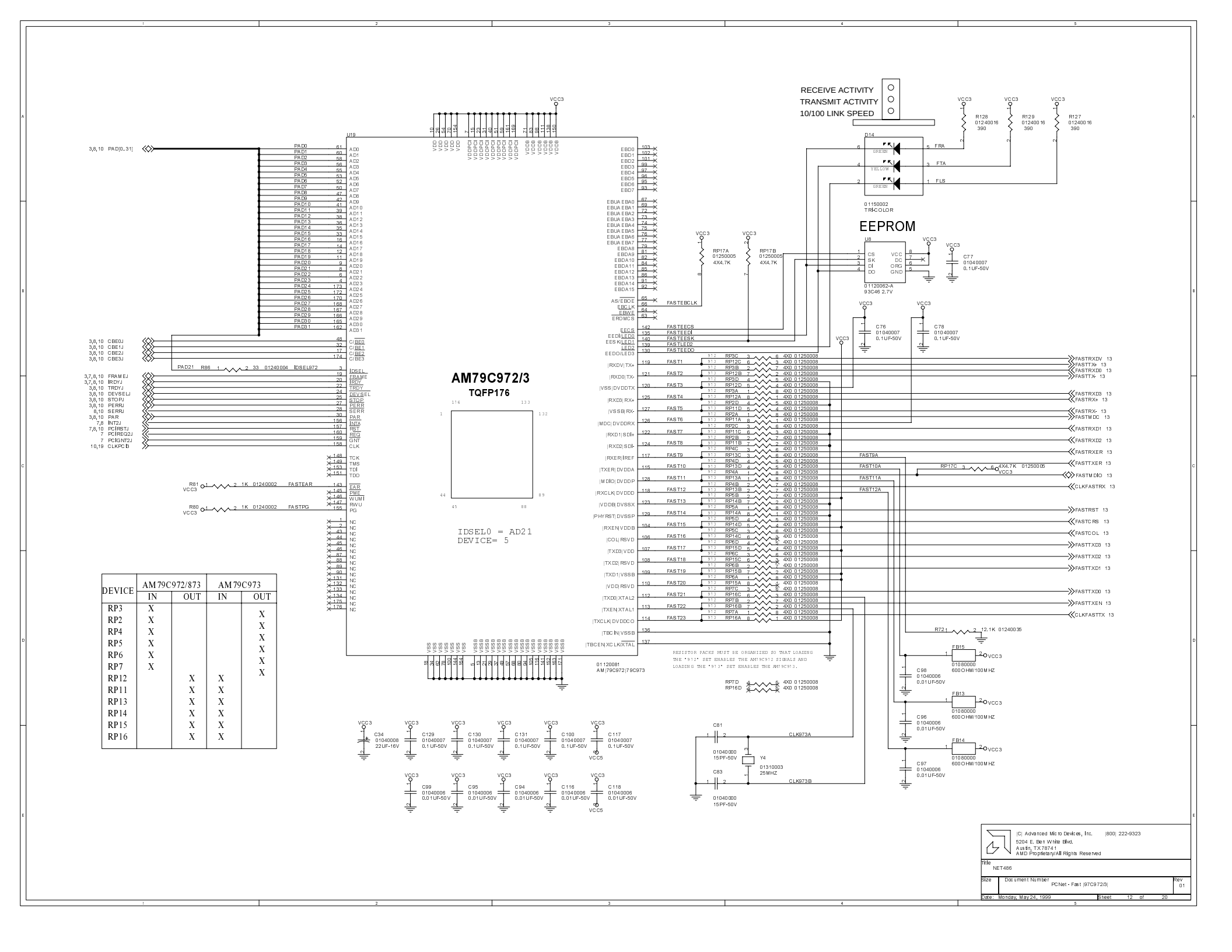

DEVICE	AM79C972/873		AM79C973	
	IN	OUT	IN	OUT
RP3	X			X
RP2	X			X
RP4	X			X
RP5	X			X
RP6	X			X
RP7	X			X
RP12		X	X	
RP11		X	X	
RP13		X	X	
RP14		X	X	
RP15		X	X	
RP16		X	X	

Title: NET486

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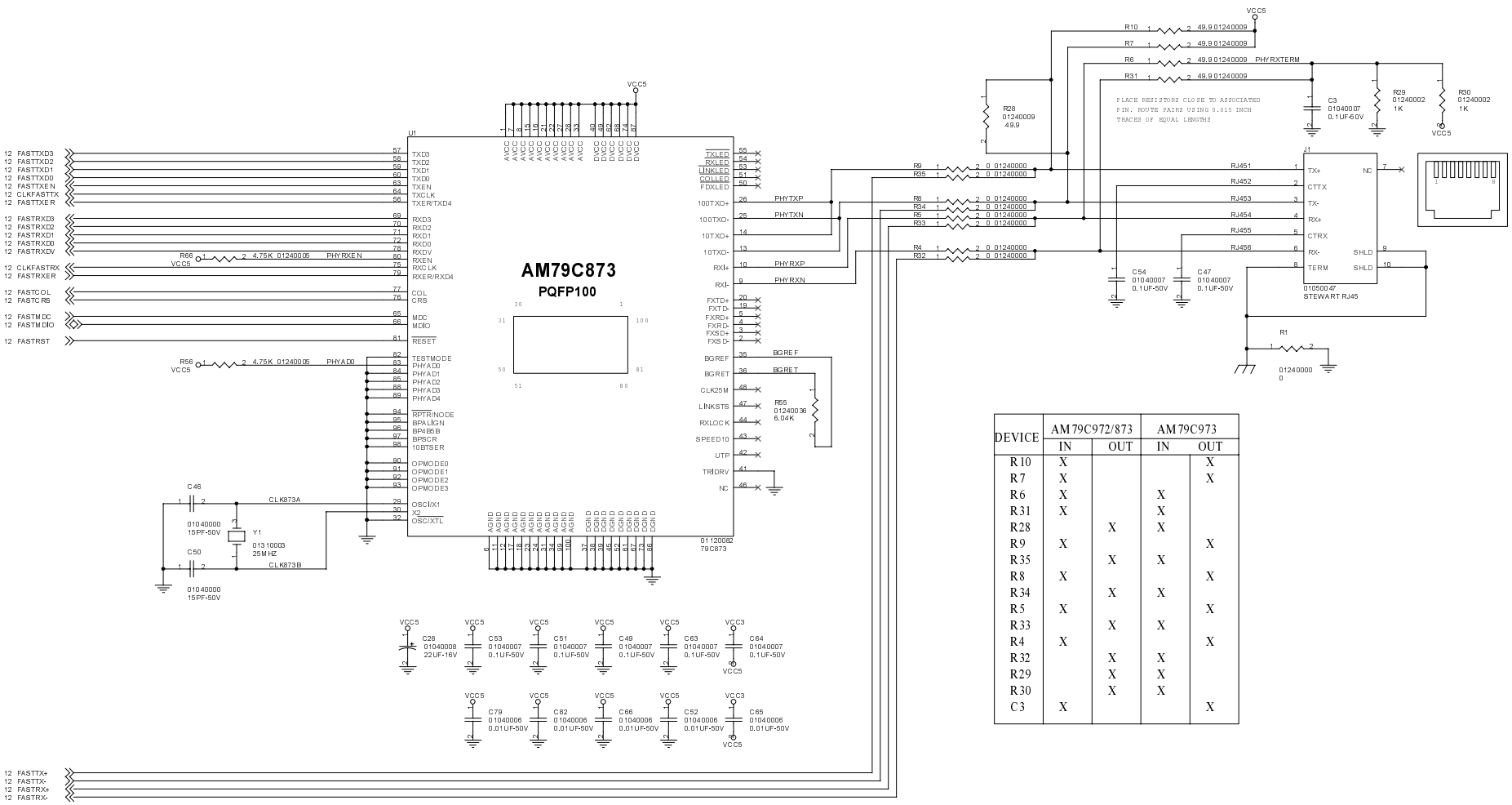

DEVICE	AM79C972/873		AM79C973	
	IN	OUT	IN	OUT
R10	X			X
R7	X			X
R6	X		X	
R31	X		X	
R28		X	X	
R9	X			X
R35		X	X	
R8	X			X
R34		X	X	
R5	X			X
R33		X	X	
R4	X			X
R32		X	X	
R29		X	X	
R30		X	X	
C3	X			X

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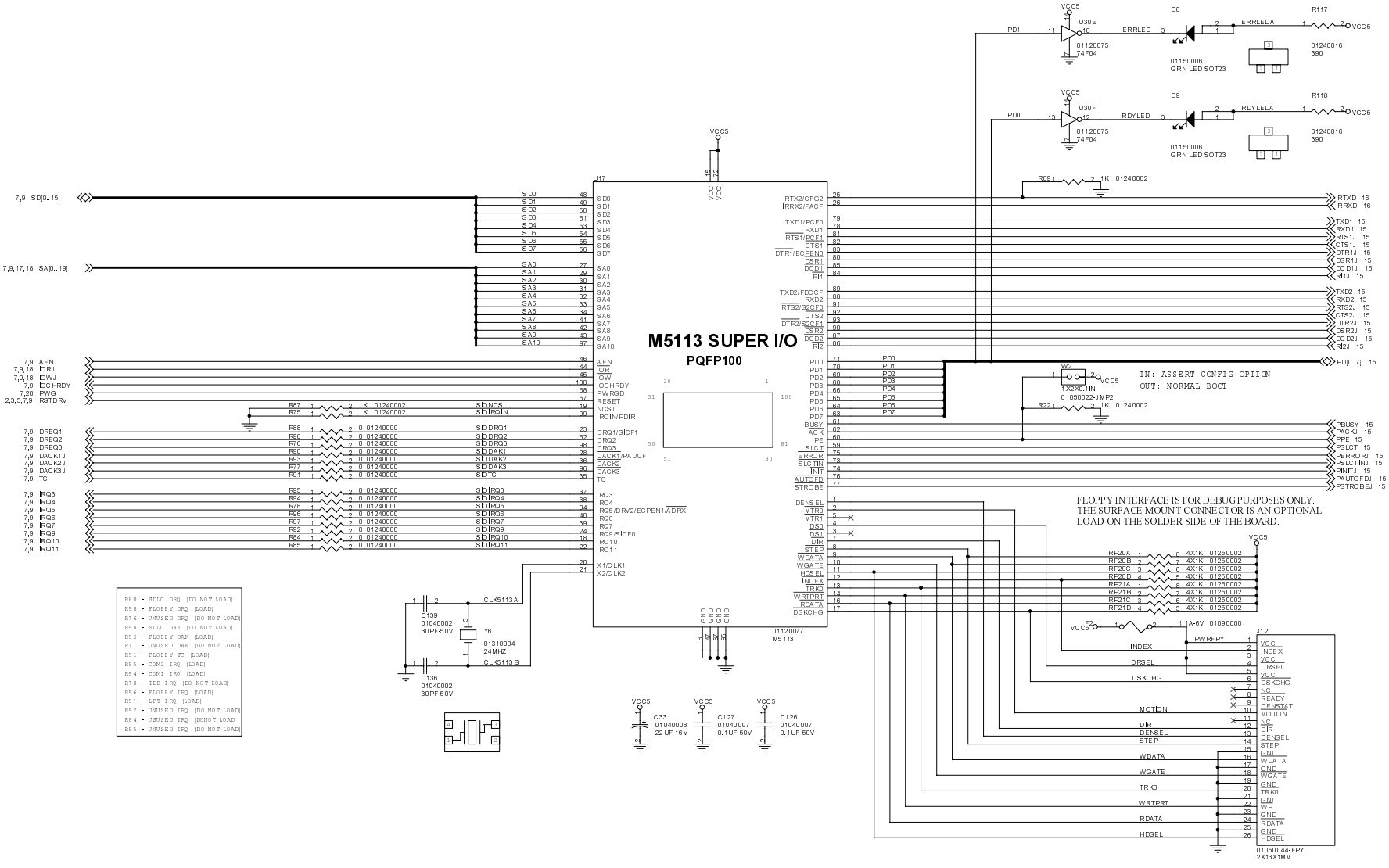
STATUS LEDS



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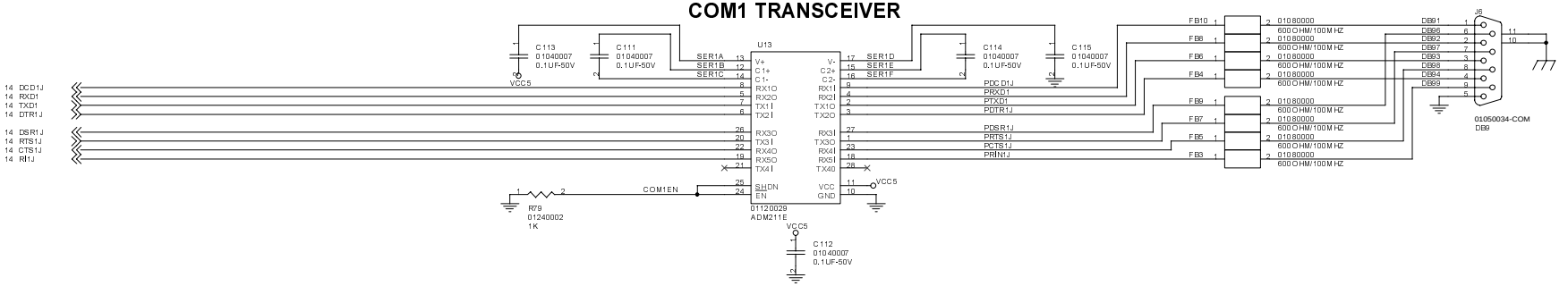
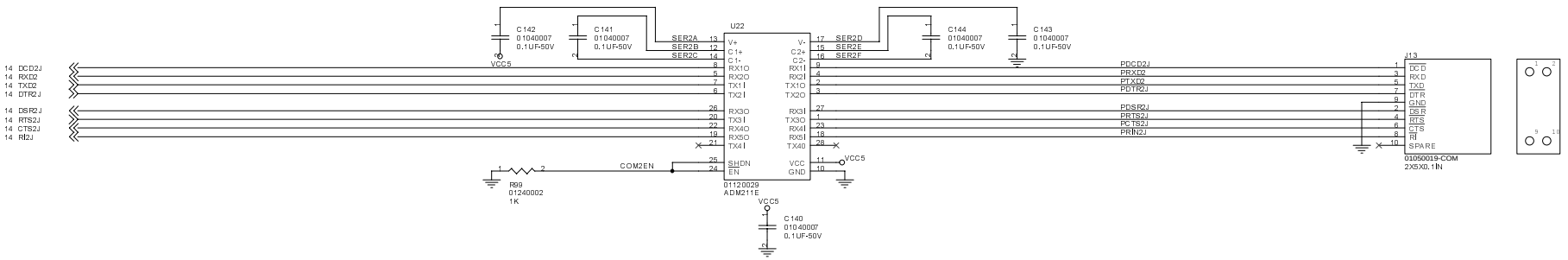
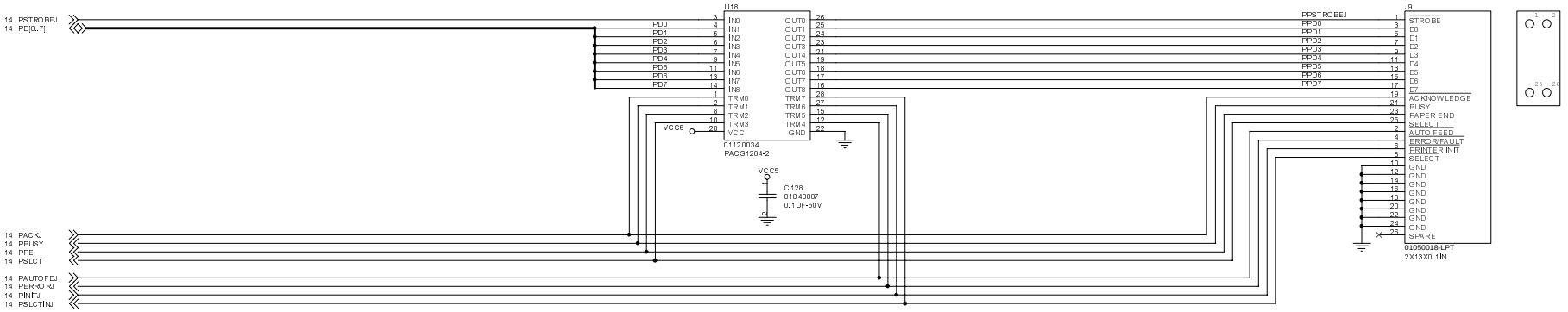
COM1 TRANSCEIVER



COM2 TRANSCEIVER



LPT TERMINATION



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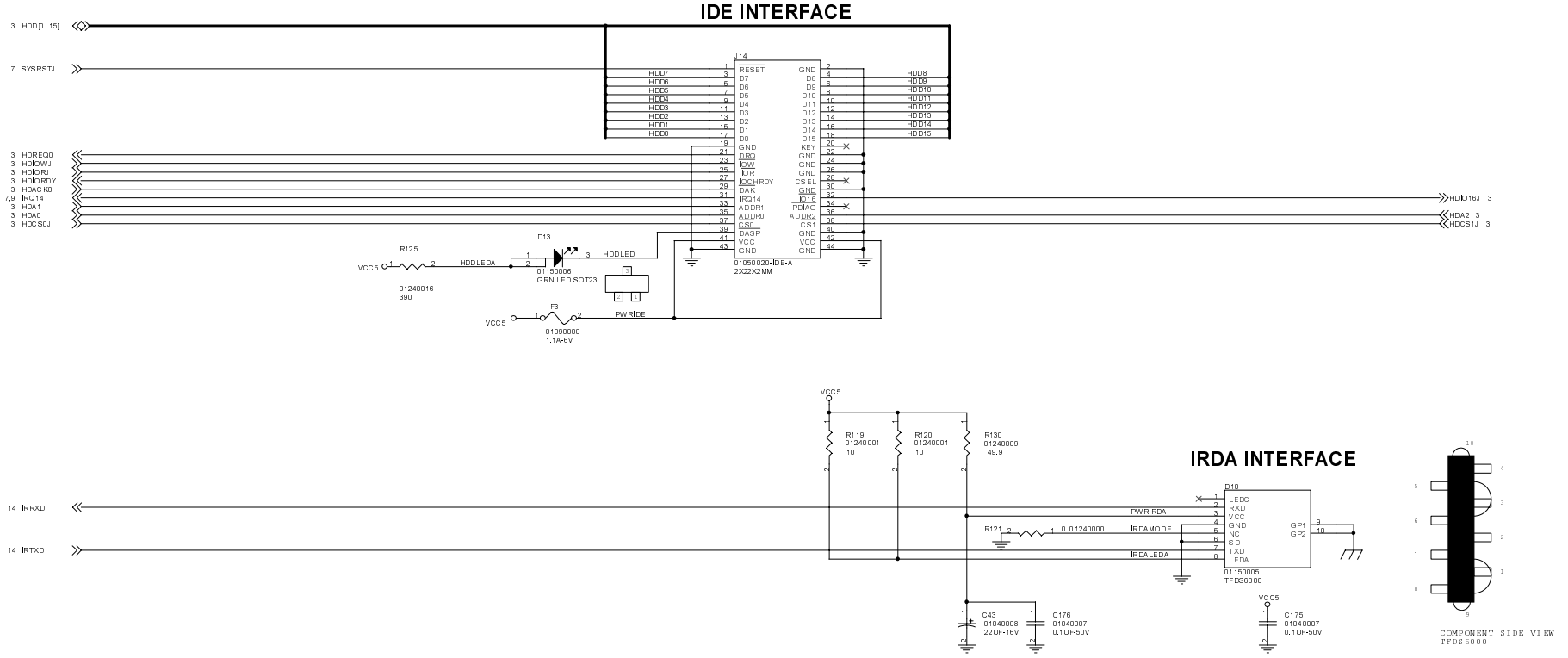

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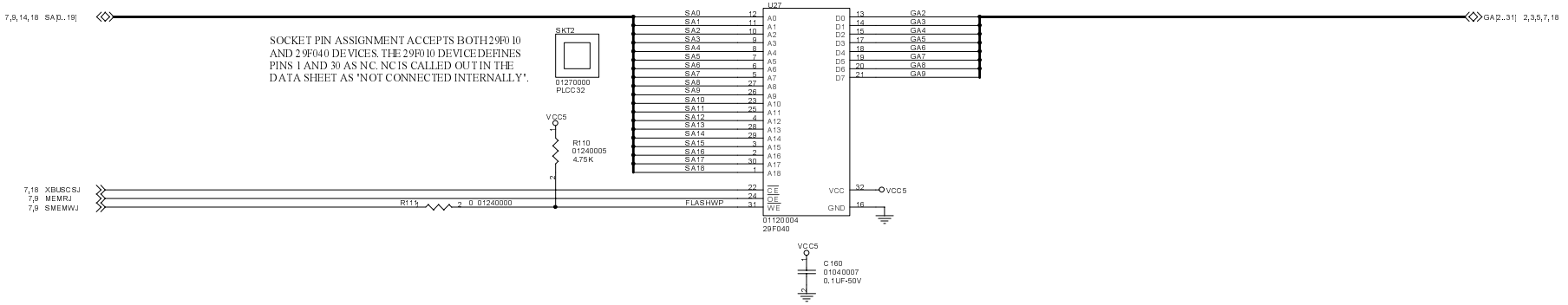
BOOT FLASH SOCKET

PLCC32



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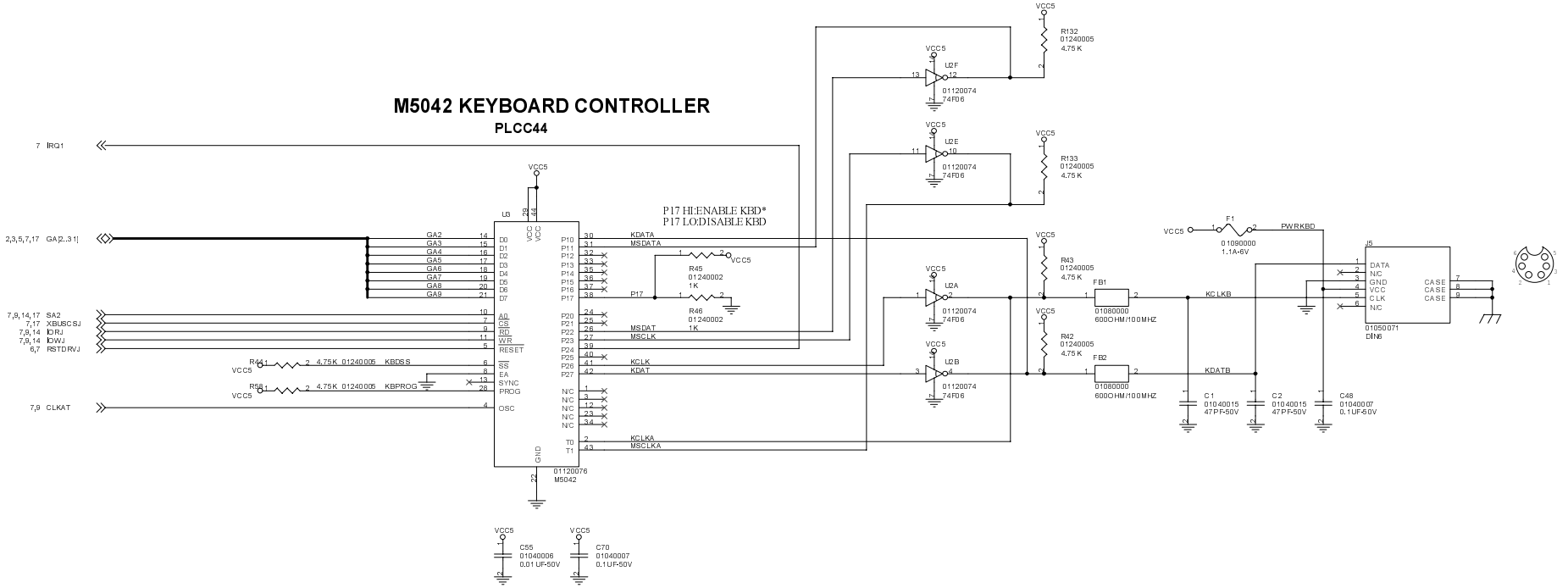
M5042 KEYBOARD CONTROLLER

PLCC44



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Title: NET486		
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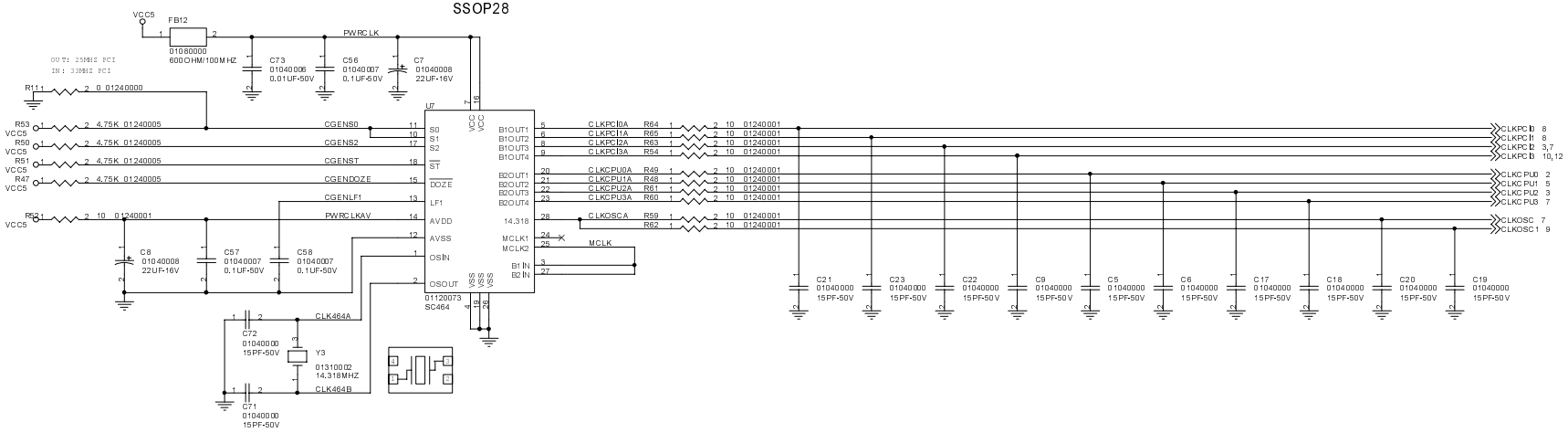
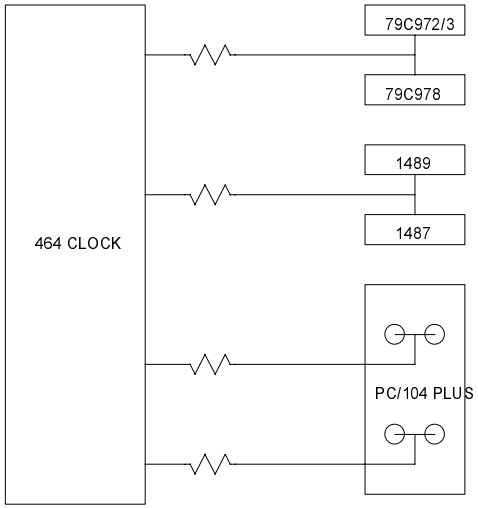
464 CLOCK GENERATOR

SSOP28





SOURCE	DESTINATION
CLKPCI0	PC/104 PLUS
	PC/104 PLUS
CLKPCI1	PC/104 PLUS
	PC/104 PLUS
CLKPCI2	M1489
	M1487
CLKPCI3	AM97C978
	AM97C972/973
CLKCPU0	AM486
CLKCPU1	ExIP CONTROL
CLKCPU2	M1489
CLKCPU3	M1487

PCI CLOCK ROUTING ARCHITECTURE. FOR EACH CLOCK, THE DISTANCE FROM THE "T" TO THE DESTINATION SHOULD BE THE SAME. FOR ALL CLOCKS, THE DISTANCE FROM THE THE 464 SOURCE TO ANY ONE DESTINATION SHOULD BE THE SAME.

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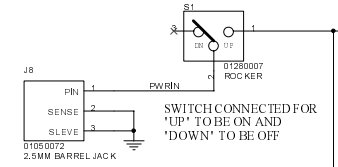
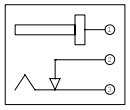
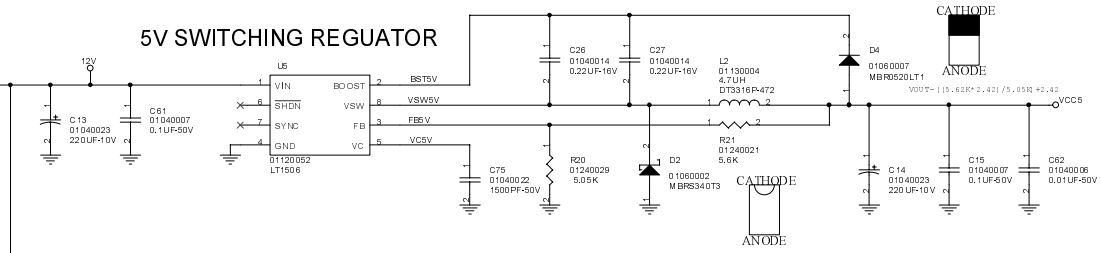
POWER CONNECTOR AND SWITCH

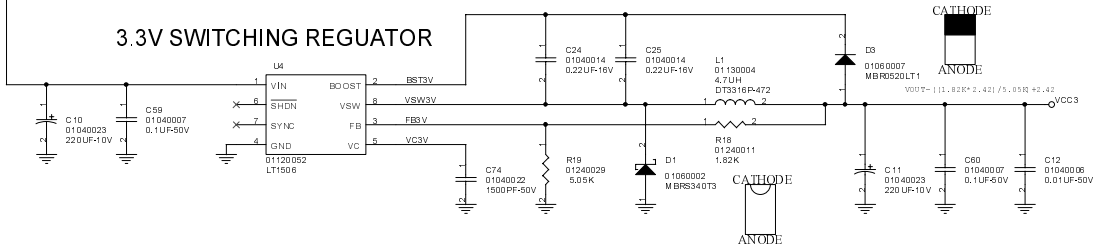




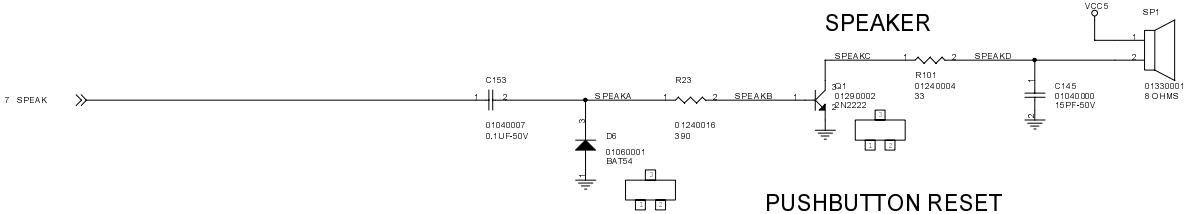
5V SWITCHING REGUATOR



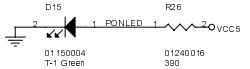
3.3V SWITCHING REGUATOR



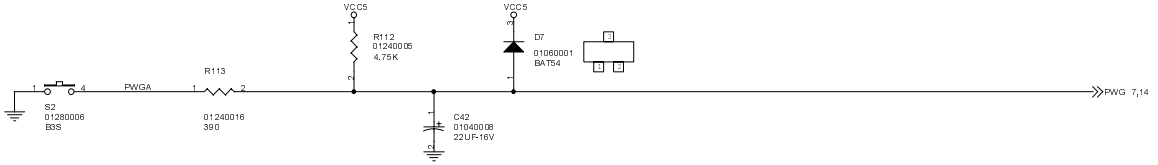
SPEAKER



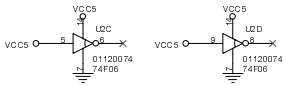
POWER ON LED



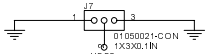
PUSHBUTTON RESET



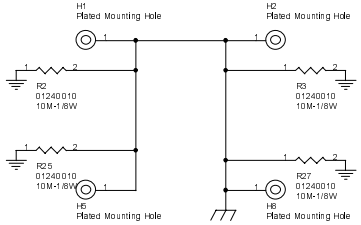
SPARE GATES



+ 5V POWER



SHIELD GROUND



REFER TO LAYOUT NOTES FOR LOCATION OF BOARD MOUNTING HOLES. HOLES ARE PLATED AND TAGGED INTO THE FRAME GROUND SHIELD. HOLES ARE 0.125 INCH DIAMETER WITH A 0.250 INCH PAD. LOCATE GROUND BRIDGE RESISTOR AT EACH HOLE.

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