NET+Works™ Development Board Jumper and Component Guide

This manual provides information on the 6127001 Development Board's jumpers and components.

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Jumper and Component Guide Table of Contents

1. Jumpers and Components

Scope

This document provides a hardware description of the 3V NET+Works Hardware Development Board.

Features

The NETsilicon 3V NET+Works Hardware Development Board provides the following basic components:

- 33 MHz NETsilicon NET+ARM
- 18.432 MHz Crystal Oscillator
- ARM JTAG ICE Port
- 2 LED Indicators
- 2 ASYNC Serial Ports
- 2 IEEE-1284 Parallel Ports
- 10/100BaseT Ethernet Port
- 8Kx8 EEPROM
- 8M DRAM (FP, EDO) or 32M SDRAM
- 1M, 2M, 4M Flash Options
- 1M OTP *(Optional)*
- Netsilicon ENI Interface (x16 Shared RAM)
- Bootstrap Configuration DIP Switches
- Prototype Board Receptacle
- Headers for HP Emulator POD Connection

Chip Select Configuration

The various peripheral devices are connected to specific chip-selects on the NET+ARM chip. The base address for each chip select must be configured using NET+ARM internal registers.

Chip Select	Peripheral	Maximum Size
CS0	OTP / Flash	4M Bytes
CS1	DRAM Bank 1	16M Bytes
CS2	DRAM Bank 2	16M Bytes
CS3	EEPROM	8K Bytes
CS4	Prototype Receptacle	32M Bytes

Table 1 - Chip Select Configuration

Jumpers

The following list defines the various jumpers and their designations. The default position for most applications should be jumper between pins 1 and 2.

Jumper	Purpose
JP1	1-2 Serial B DTR / 2-3 DREQ2* to Expansion Connector
JP6	1-2 Serial A TXCLK Output / 2-3 Input
JP7	1-2 Serial B TXCLK Output / 2-3 Input
JP9	1-2 Serial B DCD / 2-3 DONE2* to Expansion Connector
JP10	1-2 Serial A DSR / 2-3 Expansion Board Installed Indicator
JP11	1-2 Serial B DSR / 2-3 DACK2* to Expansion Connector
JP12	1-2 Serial B CTS to DB25 / 2-3 Serial B CTS to P16
JP13	1-2 Serial B RTS to DB25 / 2-3 Serial B RTS to P16
JP14	1-2 CS4* for Serial Board Configuration ID / 2-3 Expansion Connector

Table 2 - Jumpers

Connectors

The following list defines the various connectors and their designations:

J2	RJ45	10/100BaseT Ethernet (Level 1 PHY)
J5	5 Pin DIN	Power Connector
J14	96 PIN DIN	Expansion Connector
J15/J16	Dual 10x2	Serial Port A EIA Option Board
J17/J18	Dual 10x2	Serial Port B EIA Option Board
P2	14 Pin Header	ARM ICE Port
P5	Dual DB25-F	1284 Ports 1 and 2

P7	Dual DB25-M	Serial Ports 1 and 2
P8	Header 3x8	x16 vs. x32 bit DRAM configuration
P9	Header 3x8	x16 vs. x32 bit DRAM configuration
P16	50 Pin Ribbon	ENI Interface Connector
P17-P26	20 Pin Header	HP Logic Analyzer Interface PODs
P27	Header 3x8	x16 vs. x32 bit FLASH configuration
P28	Header 3x8	x16 vs. x32 bit FLASH configuration
P29	Header 3x8	x16 vs. x32 bit FLASH configuration
SW1	Switch 8 POS	Bootstrap Configuration
SW2	Switch 8 POS	Bootstrap Configuration
SW3	Switch 8 POS	Bootstrap Configuration
SW4	Switch 8 POS	Bootstrap Configuration
RN5	Res SIP 1.0K	Install for ENI Mode Only
RN6	Res SIP 1.0K	Install for 1284 Mode Only
RN7	Res SIP 1.0K	Install for 1284 Mode Only
RN8	Res SIP 1.0K	Install for ENI Mode Only

Table 2: Connectors

Switches

The list on the following page defines the various switches and their designations:

Switch	OFF (1)		ON (0)	
PULINT	**Normal**			
EPACK	**Normal**			
RES1	**Normal**			
DMAE	**Normal**			
IOC	**Normal**			
DINT2	**Normal**			
WROC	**Normal**			
PSIO	**Normal**			
BUS32	Don't use		**32-bit Mode**	
PCM0 PCM1 PCM2	*Mode*	*PCM0*	*PCM1*	*PCM2*
	1284	**OFF (1)**	**ON (0)**	**ON (0)**
	ENI	ON (0)	ON (0)	OFF (1)
	MIO	OFF (1)	ON (0)	OFF (1)

CS00 CS01	*Type*	*CS00*	*CS01*
	Disabled	ON (0)	ON (0)
	32-bit SRAM	OFF (1)	ON (0)
	32-bit DRAM	ON (0)	OFF (1)
	16-bit SRAM	**OFF (1)**	**OFF (1)**

EARB	**Internal Bus Arbiter**	External Bus Arbiter
ARMD	**ARM CPU Enabled**	ARM CPU Disabled
LEND	**Big Endian Mode**	Little Endian Mode
FLASH	Disable Flash	**Enable Flash**
OTP	**Disable OTP**	Enable OTP

ENI 1284	Mode	ENI	1284
	Do Not Use	ON (0)	ON (0)
	1284	**OFF (1)**	**ON (0)**
	ENI	ON (0)	OFF (1)

	Do Not Use	OFF (1)	OFF (1)

Table 3 - SW1/2/3/4 Settings

Prototype Receptacle

The 3V NET+Works Hardware Development Board supports a 96 PIN Eurocard style connector that can be used for quick prototyping. The NET+ARM address, data, and control buses are routed through this connector allowing expansion hardware to reside on another expansion card.

The Prototype interface connector supports a single NET+ARM chip-select. This single chip-select can address up to 32M bytes of memory on the expansion card.

The Prototype interface connector has access to 2 NET+ARM DMA channels. These signals allow for full-duplex DMA between the Prototype board and the expansion board. The DMA operation can use either memory-to-memory or fly-by operations.

The Prototype interface connector provides the necessary signals to support a DMA bus master on the expansion card.

Ethernet Interface

The 10/100 version of the 3V NET+Works Hardware Development Board provides a full-duplex 10/100Mbit Ethernet Interface using the Enable 3V PHY chip.

The Enable 3V PHY interfaces to the NET+ARM chip using the standard MII interface.

The Enable 3V PHY LEDL (link indicator) signal is connected to the NET+ARM PORTC6 GPIO signal. The PORTC6 input can be used to determine the current Ethernet link status. (The MII interface can also be used to determine the current Ethernet link status).

The Enable 3V PHY RESET* signal is connected to the NET+ARM PORTC4 GPIO signal. The PORTC4 signal can be driven low to provide a hard reset to the 3V.

The Enable 3V PHY MDINT* signal is connected to the NET+ARM PORTC0 GPIO signal. The PORTC0 input can be configured to generate an interrupt on the high to low transition of MDINT*, if desired. The MDINT* signal provides an interrupt indicator from the 3V device. Usage of interrupts is not required.

1284 Parallel Port Interface

The 3V NET+Works Hardware Development Board can be configured to operate using either the 1284 Parallel Ports or the ENI Interface, however, both interfaces cannot be used at the same time.

In order to configure the 1284 Parallel Port Interface to work on the 3V NET+Works Hardware Development Board, the following must be done.

- The PCM0:2 bits on the SW3 switch block must be set to the OFF, ON, ON position (see Table 3).
- The DPO switch on SW4 must be set to the OFF position
- The 1284 switch on SW4 must be set to the ON position
- RN5, 8 must be removed (1.0K resistor network)
- RN6, 7 must be installed (1.0K resistor network)

On power up, the 1284 Control Transceivers are tri-stated in order to avoid glitching the 1284 control interface signals. The control interface signals must be enabled by firmware. Enabling the 1284 control transceivers is accomplished by simply setting the NET+ARM GPIO signal PORTC3 to the low state. The PORTC3 GPIO signal can remain low forever.

ENI Interface

The 3V NET+Works Hardware Development Board can be configured to operate using either the 1284 Parallel Ports or the ENI Interface, however, both interfaces cannot be used at the same time.

In order to configure the ENI Interface to work on the 3V NET+Works Hardware Development Board, the following must be done.

- The PCM0:2 bits on the SW3 switch block must be set to the ON, ON, OFF position (see Table 3).
- The DPO switch on SW4 must be set to the ON position
- The 1284 switch on SW4 must be set to the OFF position
- RN5,8 must be installed (1.0K resistor network)
- RN6,7 must be removed (1.0K resistor network)

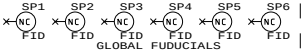
2. Development Board Schematics

The following pages show the schematic drawings for the 3V NET+Works Hardware Development Board.

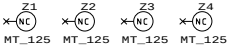
NOTES:

1. ALL RESISTOR VALUES ARE IN OHMS AND IN THE 0603 SIZE UNLESS OTHERWISE NOTED
2. ALL RESISTOR VALUES ARE 5% UNLESS OTHERWISE NOTED
3. ALL CAPACITORS ARE RATED IN uFARADS AND IN THE 0603 SIZE UNLESS OTHERWISE NOTED
4. ALL CAPACITORS ARE RATED AT 50 VDC OR HIGHER UNLESS OTHERWISE NOTED
5. LAST USED: SEE N0E25001.SCH FOR LAST USED.

link
S2NCCPT2.SCH
S2NCCPT3.SCH
S2NCCPT4.SCH
S2NCCPT5.SCH
S2NCCPT6.SCH
S2NCCPT7.SCH
S2NCCPT8.SCH
S2NCCPT9.SCH
S2NCCPTA.SCH
S2NCCPTB.SCH



GLOBAL FUDUCIALS



TOOLING HOLES

S2NCCPT

LARGE BOX NET+ARM
DEVELOPMENT BOARD
Synchronous Memory Support

BOARD REVISIONS

09/28/98 1927000 S2 REV A
09/28/98 1927001 S2 REV B

BOARD REV NOTES

REV B PCB ADDS R227 ON SH.B TO ARTWORK
ADDS SW1 PUSH BUTTON FOR RESET
CORRECTS USA PIN 3 & 4 REVERSAL.
INCORPERATES TA- & TEA- PULLUPS TO 500 OHMS.

SHEET REV NOTES
* INDICATES ARTWORK NOT UPDATED.

REV B SH.2 ADDS RP1_ECO(TA- & TEA- PULL-UP),& OMIT ON R143
REV C ADDS PUSH BUTTON RESET SWITCH.
*REV D ADDS EXTERNAL OSCILLATOR OPTION FOR NETARM 15/40
*REV E ADDS 2.5V OR 3.3V OPTION AS NETARM CORE POWER SOURCE

*REV B SH.3 CHANGES A13 ON U740.23 & P9.13 TO A21

*REV B SH.5 ADDS C444 FROM U440.56 TO GND.
*REV C ADDS GATE DELAY FOR TS- INSTEAD OF C444

REV B SH.6 CHANGES 4.7K SIP TO 1.0K(RN5 & 8)

REV B SH.7 ADDS NOTES TO OMIT C75 & C82.
REV C CHANGES 4.7K SIP TO 1.0K(RN6 & 7)

*REV B SH.8 ADDS EMI ADJUSTMENT NEAR P7 DUAL D

*REV B SH.9 ADDS 2.5V POWER SOURCE OPTION

*REV B SH.A ADDS NOTE TO U7A SPARES

REV B SH.B Adds R227(1.5K) Pullup to Signal MDIO.
REV C UPDATES R227 NOTE.
REV D CHANGES ENABLE TO LUCENT ON 10/100 PHY

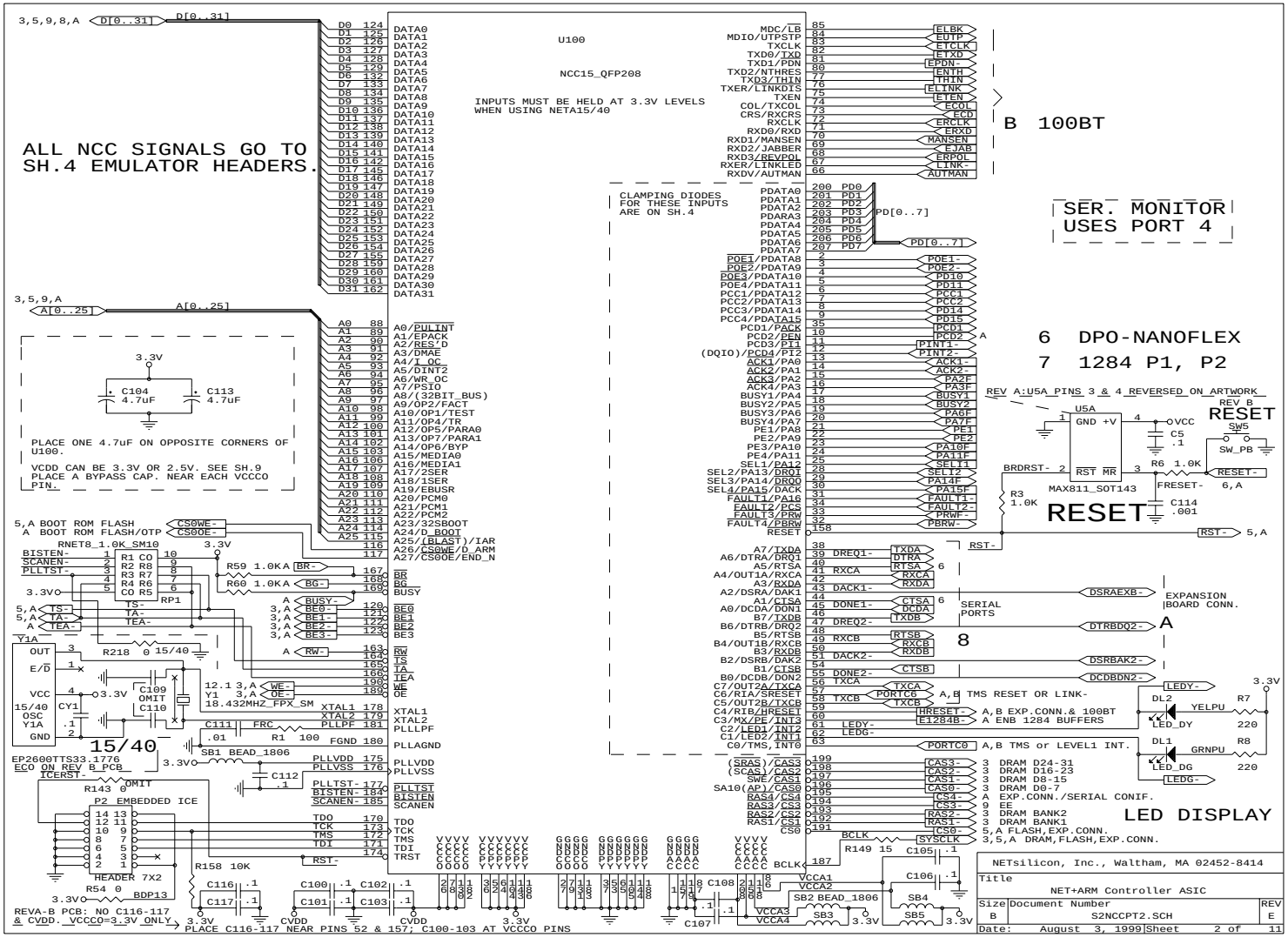
SHEET DESCRIPTION

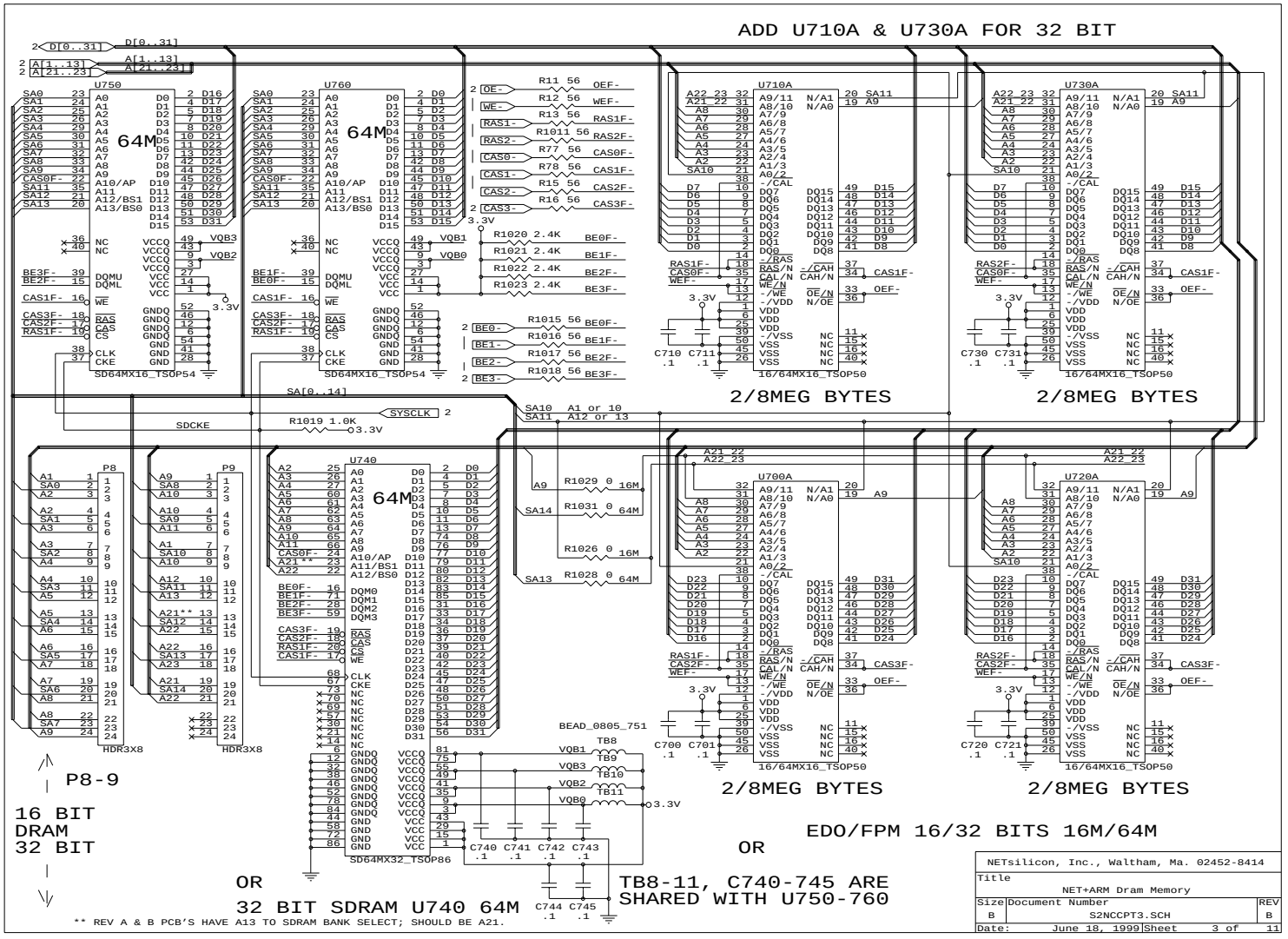
SH. #	REV.	DESCRIPTION
1.	H	Cover SheeT
2.	E	NET+ARM/NCC
3.	B	DRAM Memory
4.	A	Emulator Headers & Clamping Diodes
5.	C	Flash & OTP Memory
6.	B	DPO(50 Pin Nanopulse)
7.	C	Parallel Ports 1 & 2
8.	B	EIA530 Serial Ports 3 & 4
9.	B	Power, Spares, & EE Memory
A.	B	System Bus Expansion & Dipswitches
B.	D	Ethernet Front End; 10/100BaseTX

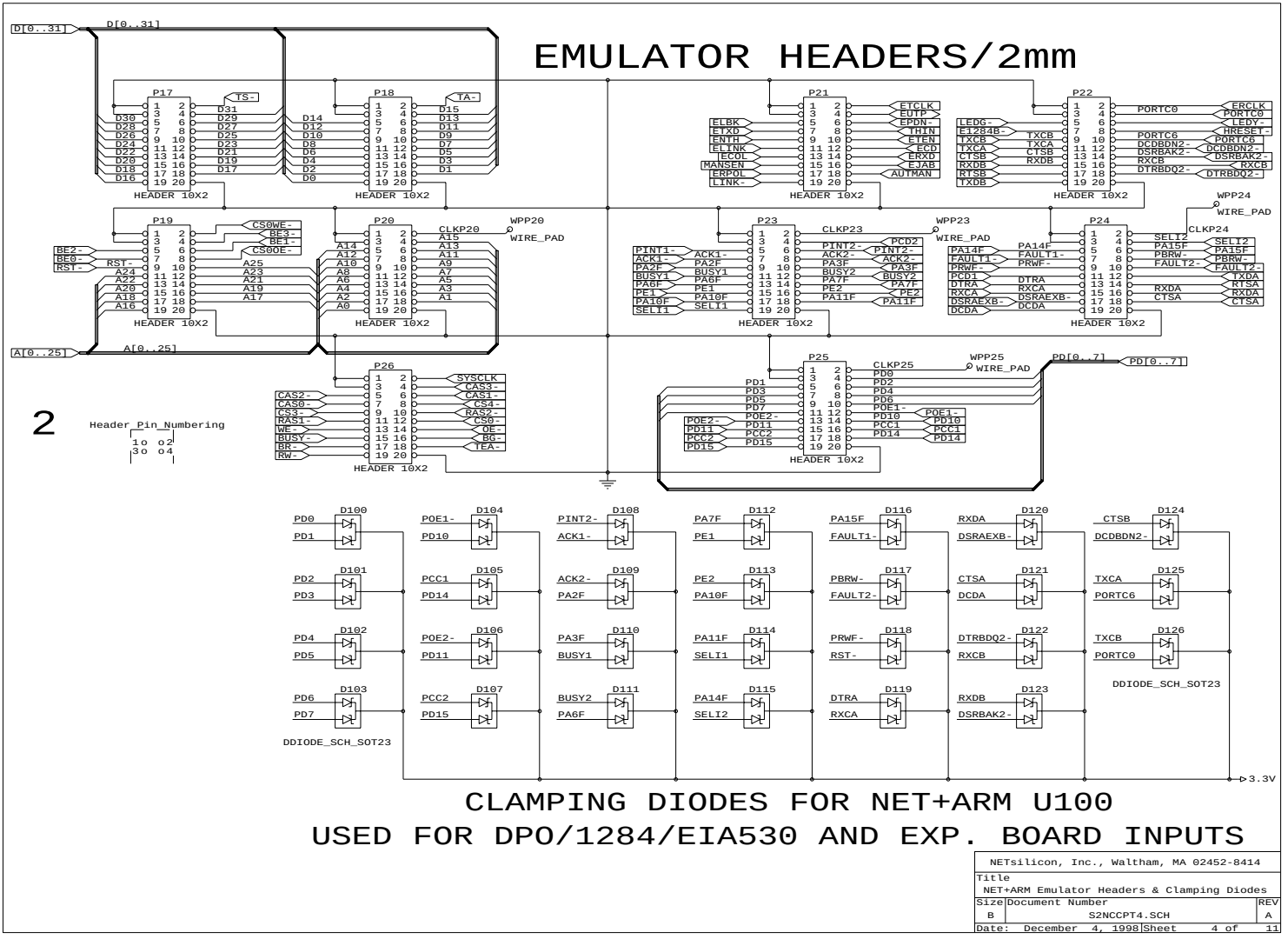
DESIGNER: Don Stone

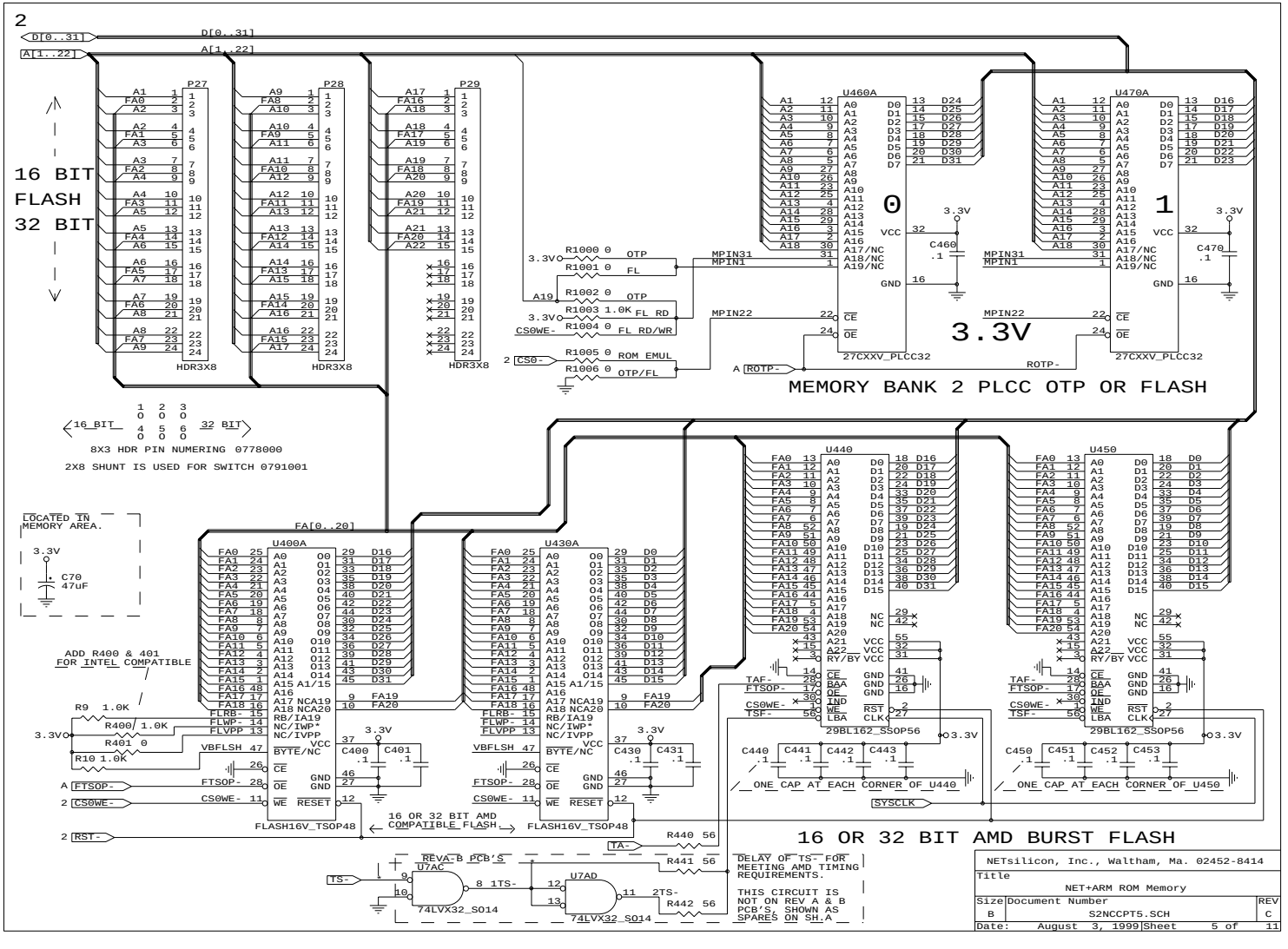
NETsilicon, Inc., Waltham, Ma. 02452-8414

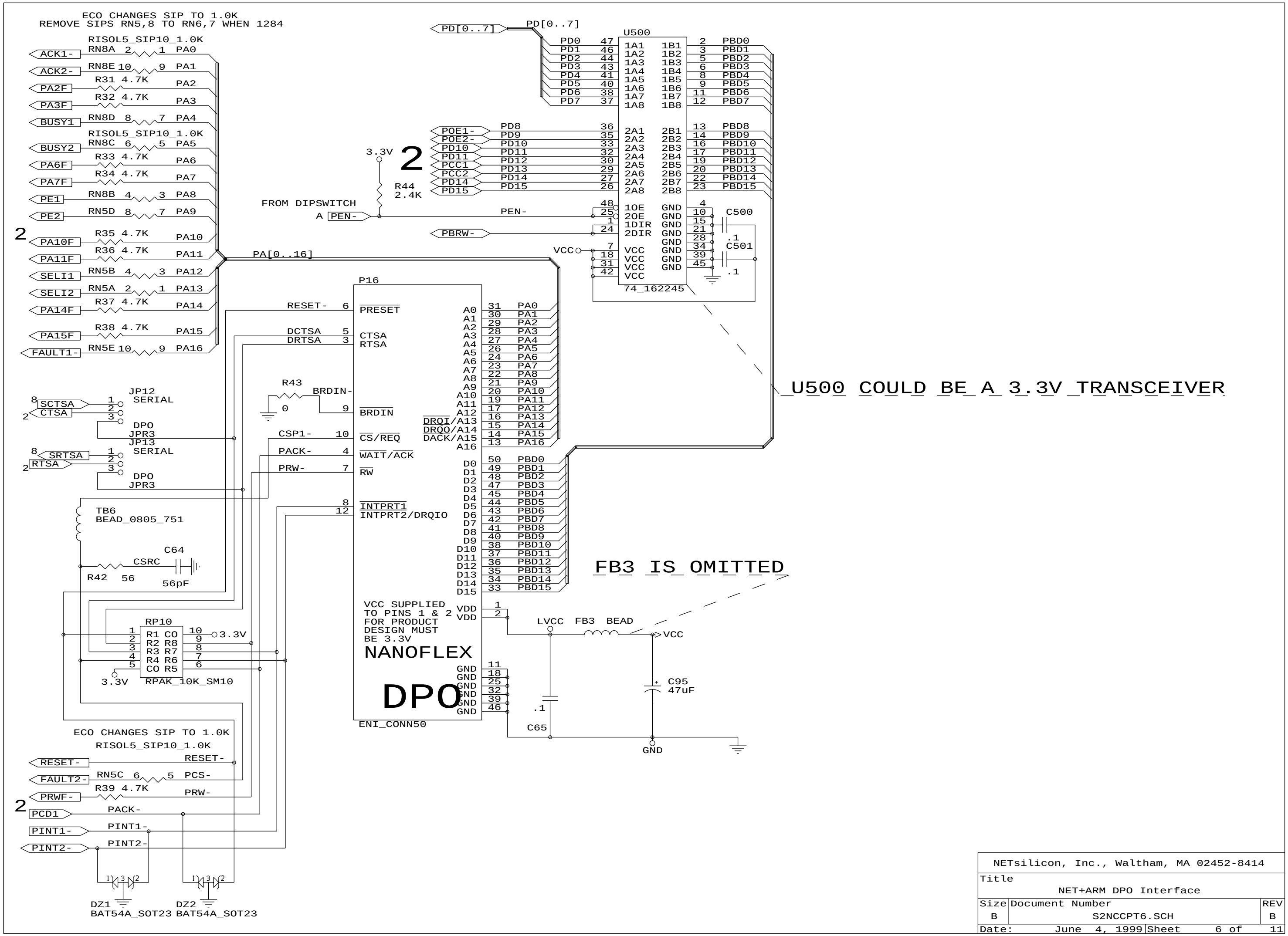
Title		
NET+ARM COVER SHEET		
Size: B	Document Number: S2NCCPT1.SCH	REV: H
Date: August 2, 1999	Sheet 1 of 11	

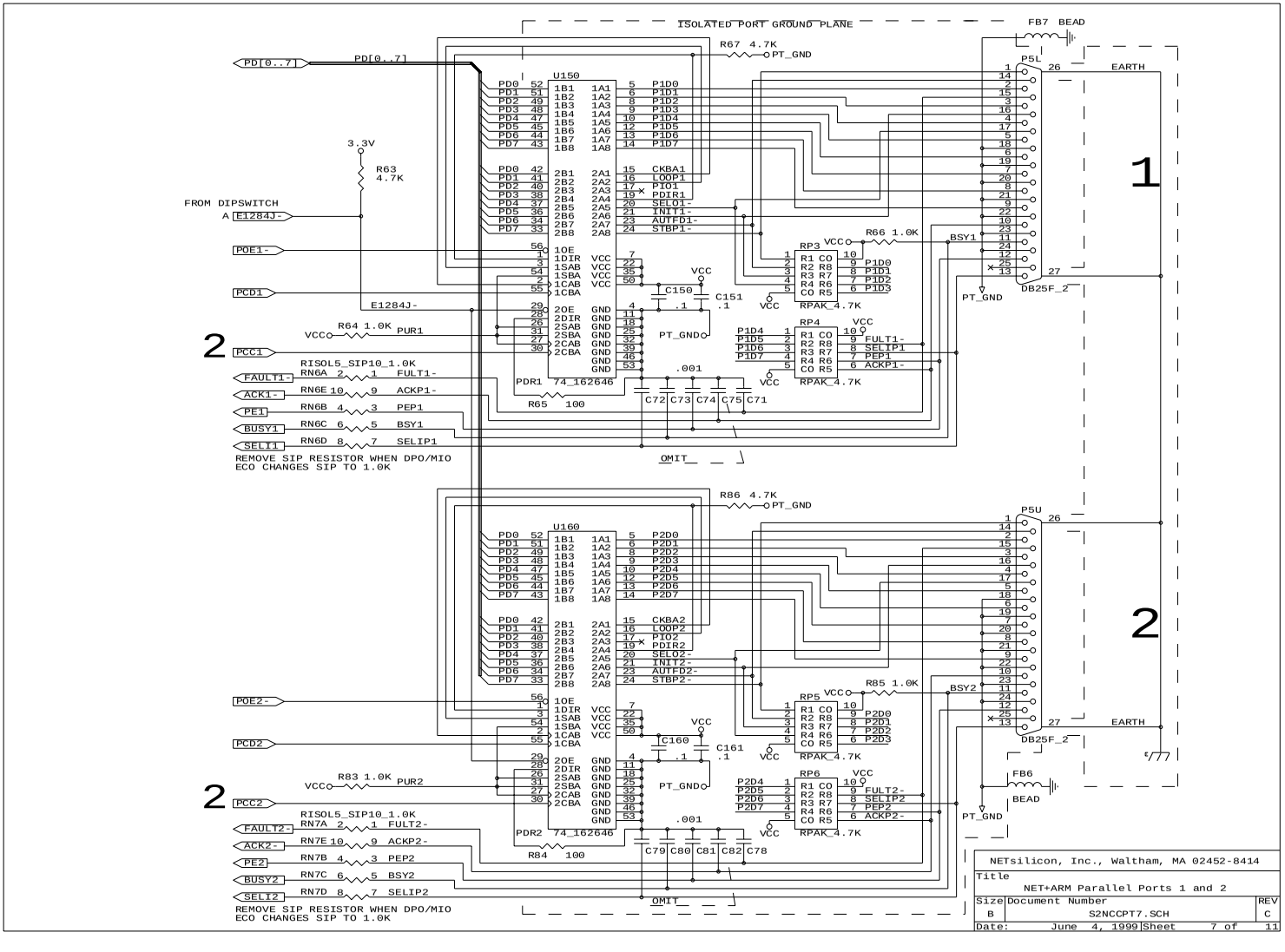

ALL NCC SIGNALS GO TO SH.4 EMULATOR HEADERS.
U100
NCC15_QFP208
INPUTS MUST BE HELD AT 3.3V LEVELS WHEN USING NETA15/40
B 100BT
SER. MONITOR USES PORT 4
6 DPO-NANOFLEX
7 1284 P1, P2
CLAMPING DIODES FOR THESE INPUTS ARE ON SH.4
PLACE ONE 4.7uF ON OPPOSITE CORNERS OF U100.
VCDD CAN BE 3.3V OR 2.5V. SEE SH.9 PLACE A BYPASS CAP. NEAR EACH VCCCO PIN.
REV A:U5A PINS 3 & 4 REVERSED ON ARTWORK
RESET
MAX811_SOT143
EXPANSION BOARD CONN.
SERIAL PORTS
LED DISPLAY
P2 EMBEDDED ICE
HEADER 7X2
EP2600TTS33.1776 ECO ON REV B PCB
REVA-B PCB: NO C116-117 & CVDD. VCCCO=3.3V ONLY
PLACE C116-117 NEAR PINS 52 & 157; C100-103 AT VCCCO PINS
NETsilicon, Inc., Waltham, MA 02452-8414
NET+ARM Controller ASIC
S2NCCPT2.SCH
August 3, 1999

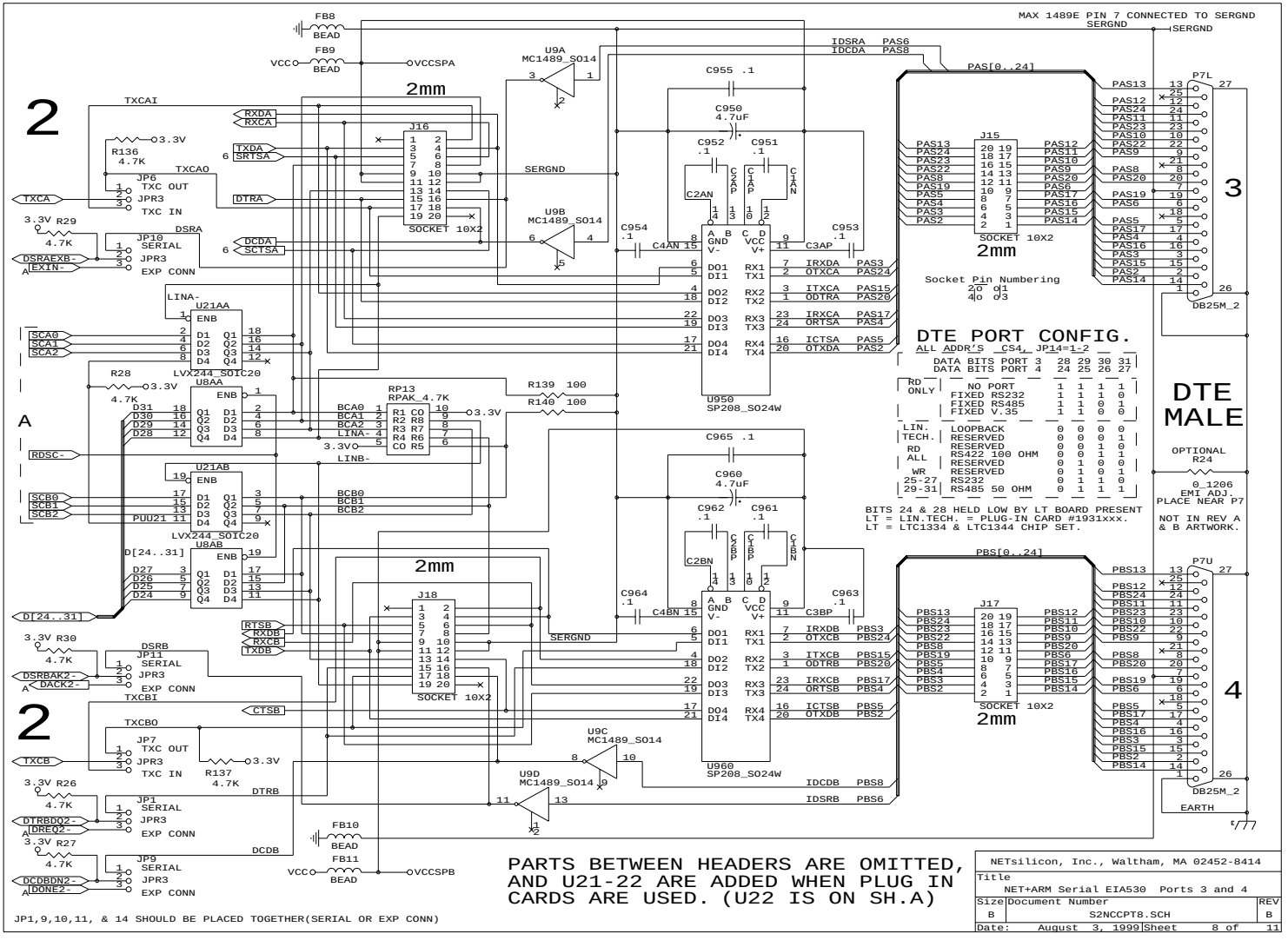

ADD U710A & U730A FOR 32 BIT
U750
64M
SD64MX16_TSOP54
U760
64M
SD64MX16_TSOP54
U710A
2/8MEG BYTES
16/64MX16_TSOP50
U730A
2/8MEG BYTES
16/64MX16_TSOP50
U700A
2/8MEG BYTES
16/64MX16_TSOP50
U720A
2/8MEG BYTES
16/64MX16_TSOP50
U740
64M
SD64MX32_TSOP86
P8
P9
HDR3X8
P8-9
16 BIT
DRAM
32 BIT
OR
32 BIT SDRAM U740 64M
EDO/FPM 16/32 BITS 16M/64M
OR
TB8-11, C740-745 ARE
SHARED WITH U750-760
** REV A & B PCB'S HAVE A13 TO SDRAM BANK SELECT; SHOULD BE A21.
NETsilicon, Inc., Waltham, Ma. 02452-8414
Title
NET+ARM Dram Memory
Size B
Document Number S2NCCPT3.SCH
REV B
Date: June 18, 1999
Sheet 3 of 11

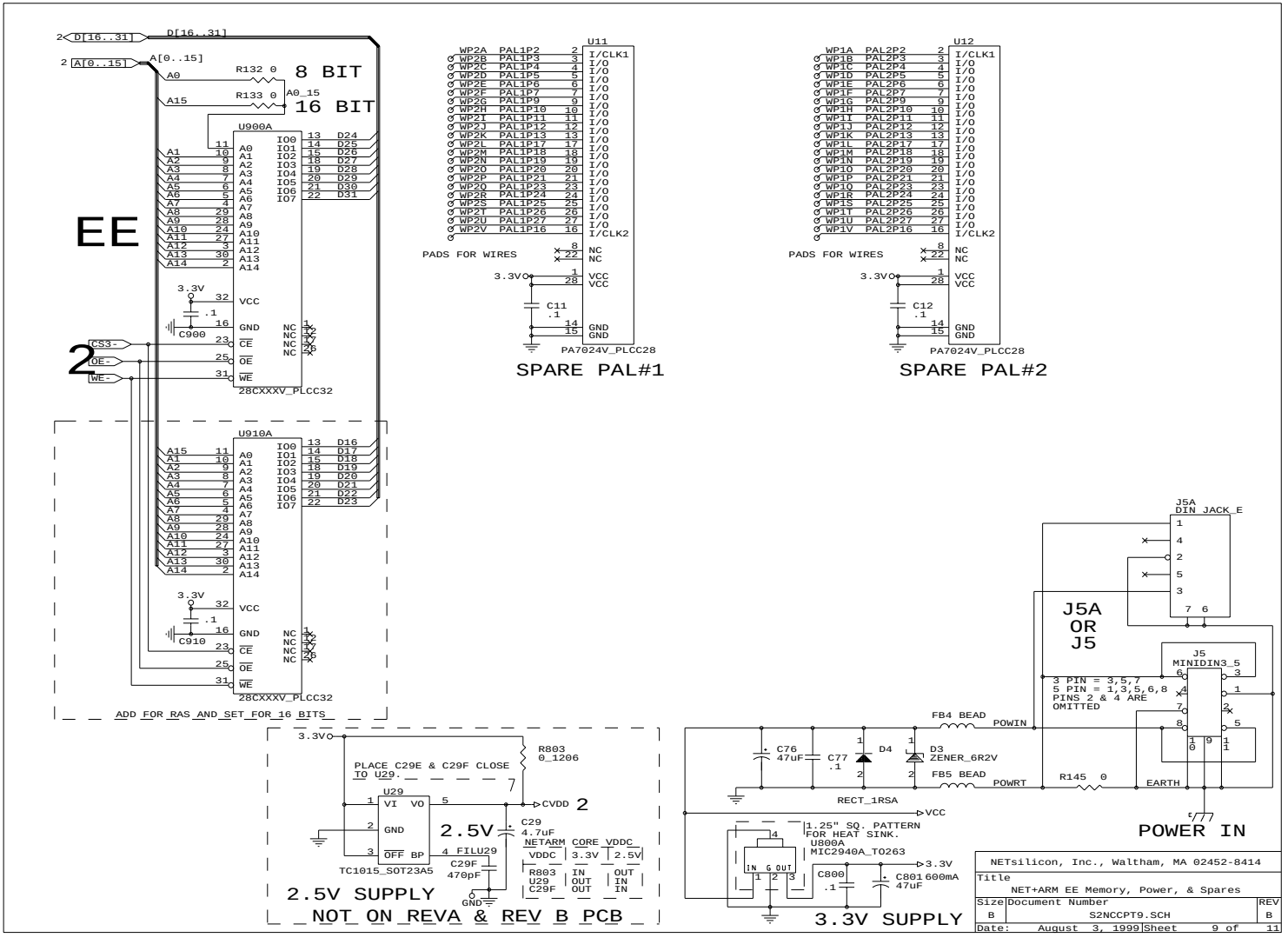

EMULATOR HEADERS/2mm
P17
P18
P19
P20
P21
P22
P23
P24
P25
P26
HEADER 10X2
WIRE_PAD
WPP20
WPP23
WPP24
WPP25
CLKP20
CLKP23
CLKP24
D[0..31]
A[0..25]
PD[0..7]
Header_Pin_Numbering
CLAMPING DIODES FOR NET+ARM U100
USED FOR DPO/1284/EIA530 AND EXP. BOARD INPUTS
DDIODE_SCH_SOT23
3.3V
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM Emulator Headers & Clamping Diodes
Size B
Document Number S2NCCPT4.SCH
REV A
Date: December 4, 1998
Sheet 4 of 11

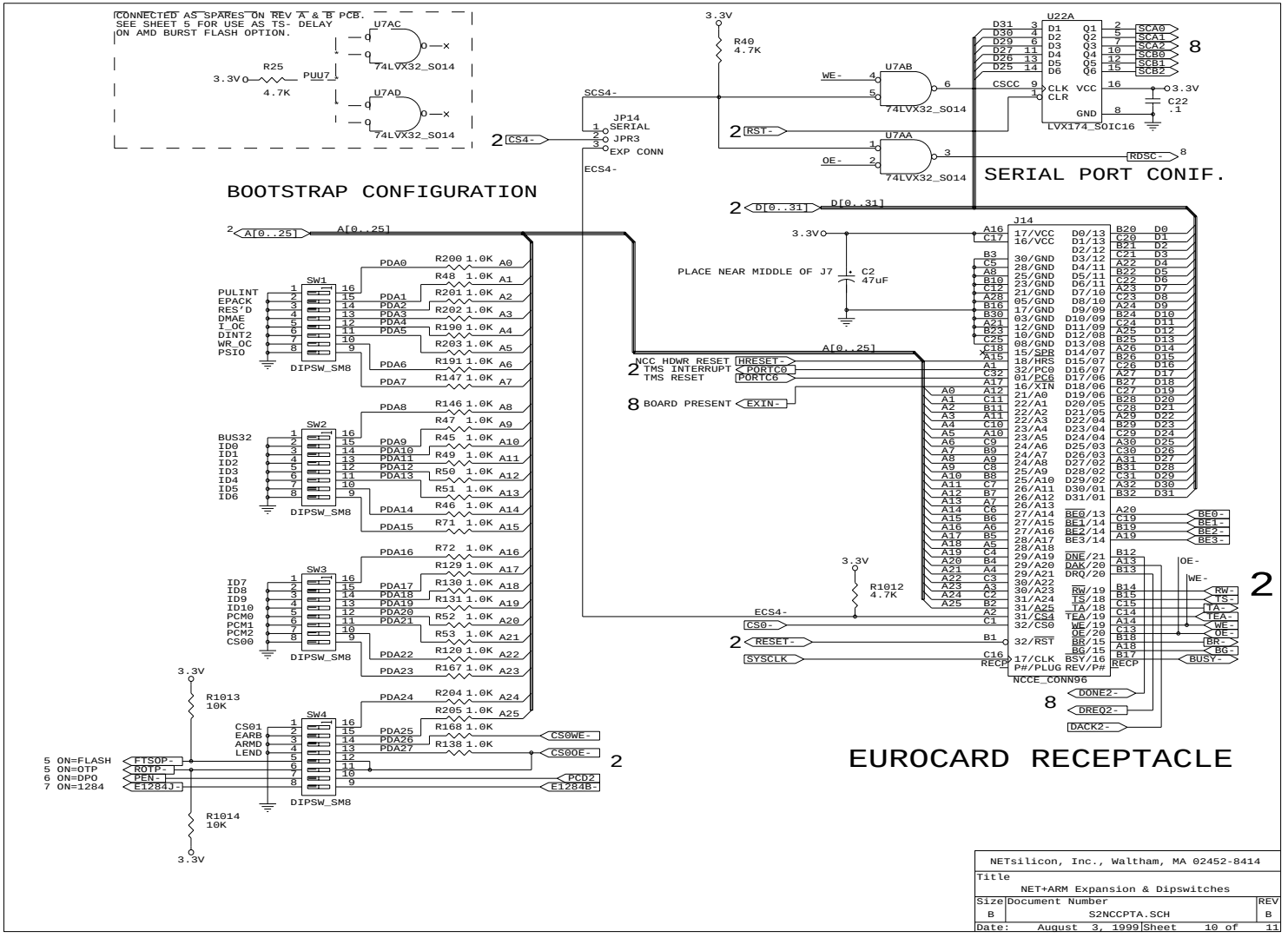

16 BIT
FLASH
32 BIT
MEMORY BANK 2 PLCC OTP OR FLASH
3.3V
16 OR 32 BIT AMD BURST FLASH
8X3 HDR PIN NUMERING 0778000
2X8 SHUNT IS USED FOR SWITCH 0791001
LOCATED IN MEMORY AREA.
ADD R400 & 401 FOR INTEL COMPATIBLE
16 OR 32 BIT AMD COMPATIBLE FLASH
ONE CAP AT EACH CORNER OF U440
ONE CAP AT EACH CORNER OF U450
REV A-B PCB'S
DELAY OF TS- FOR MEETING AMD TIMING REQUIREMENTS.
THIS CIRCUIT IS NOT ON REV A & B PCB'S, SHOWN AS SPARES ON SH.A
NETsilicon, Inc., Waltham, Ma. 02452-8414
NET+ARM ROM Memory
S2NCCPT5.SCH
August 3, 1999
5 of 11


ECO CHANGES SIP TO 1.0K
REMOVE SIPS RN5,8 TO RN6,7 WHEN 1284
RISOL5_SIP10_1.0K
U500 COULD BE A 3.3V TRANSCEIVER
FB3 IS OMITTED
FROM DIPSWITCH
74_162245
VCC SUPPLIED TO PINS 1 & 2 FOR PRODUCT DESIGN MUST BE 3.3V
NANOFLEX
DPO
ENI_CONN50
RPAK_10K_SM10
TB6 BEAD_0805_751
DZ1 BAT54A_SOT23
DZ2 BAT54A_SOT23
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM DPO Interface
Size B
Document Number S2NCCPT6.SCH
REV B
Date: June 4, 1999
Sheet 6 of 11

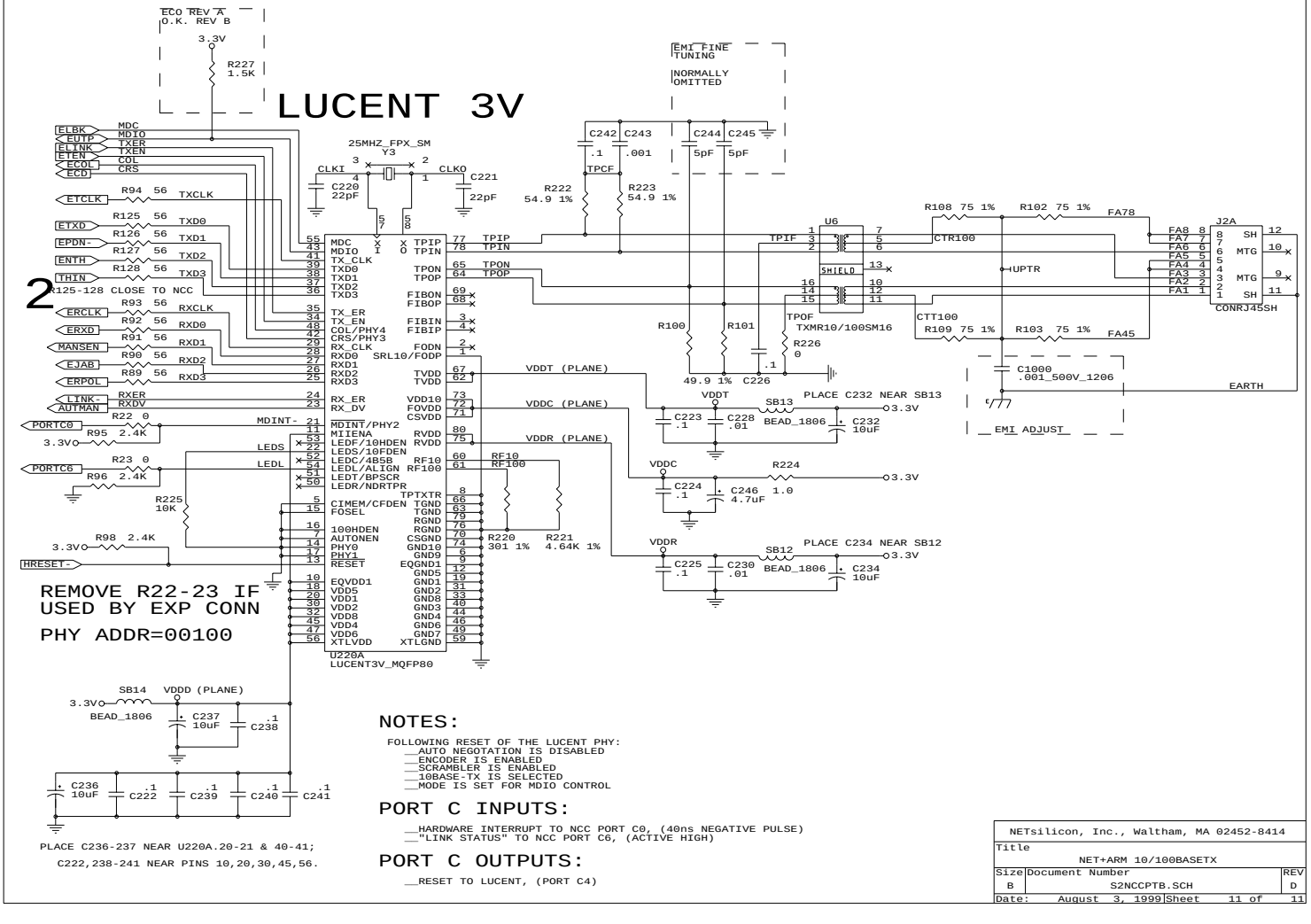

ISOLATED PORT GROUND PLANE
FB7 BEAD
PD[0..7]
PD[0..7]
R67 4.7K
PT_GND
U150
P5L
EARTH
3.3V
R63
4.7K
FROM DIPSWITCH
A E1284J-
POE1-
PCD1
E1284J-
R64 1.0K
PUR1
VCC
PCC1
RISOL5_SIP10_1.0K
RN6A
FAULT1-
RN6E
ACK1-
RN6B
PE1
RN6C
BUSY1
RN6D
SELI1
REMOVE SIP RESISTOR WHEN DPO/MIO
ECO CHANGES SIP TO 1.0K
PDR1 74_162646
R65 100
RP3
R66 1.0K
BSY1
RP4
P1D0
P1D1
P1D2
P1D3
P1D4
P1D5
P1D6
P1D7
FULT1-
SELIP1
PEP1
ACKP1-
C150
C151
.1
.001
C72 C73 C74 C75 C71
OMIT
DB25F_2
PT_GND
1
2
R86 4.7K
U160
P5U
R85 1.0K
BSY2
RP5
RP6
P2D0
P2D1
P2D2
P2D3
P2D4
P2D5
P2D6
P2D7
FULT2-
SELIP2
PEP2
ACKP2-
C160
C161
POE2-
PCD2
R83 1.0K
PUR2
PCC2
FAULT2-
ACK2-
PE2
BUSY2
SELI2
PDR2 74_162646
R84 100
C79 C80 C81 C82 C78
FB6
BEAD
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM Parallel Ports 1 and 2
Size B
Document Number S2NCCPT7.SCH
REV C
Date: June 4, 1999 Sheet 7 of 11


MAX 1489E PIN 7 CONNECTED TO SERGND
SERGND
DTE PORT CONFIG.
ALL ADDR'S CS4, JP14=1-2
DATA BITS PORT 3 28 29 30 31
DATA BITS PORT 4 24 25 26 27
RD ONLY NO PORT 1 1 1 1
FIXED RS232 1 1 1 0
FIXED RS485 1 1 0 1
FIXED V.35 1 1 0 0
LIN. TECH. LOOPBACK 0 0 0 0
RESERVED 0 0 0 1
RD ALL RESERVED 0 0 1 0
RESERVED 0 0 1 1
WR RESERVED 0 1 0 0
25-27 RS232 0 1 1 0
29-31 RS485 50 OHM 0 1 1 1
BITS 24 & 28 HELD LOW BY LT BOARD PRESENT
LT = LIN.TECH. = PLUG-IN CARD #1931xxx.
LT = LTC1334 & LTC1344 CHIP SET.
DTE MALE
OPTIONAL R24
0_1206 EMI ADJ. PLACE NEAR P7
NOT IN REV A & B ARTWORK.
Socket Pin Numbering
SOCKET 10X2
2mm
DB25M_2
EARTH
PAS[0..24]
PBS[0..24]
PARTS BETWEEN HEADERS ARE OMITTED, AND U21-22 ARE ADDED WHEN PLUG IN CARDS ARE USED. (U22 IS ON SH.A)
JP1,9,10,11, & 14 SHOULD BE PLACED TOGETHER(SERIAL OR EXP CONN)
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM Serial EIA530 Ports 3 and 4
Size B
Document Number S2NCCPT8.SCH
REV B
Date: August 3, 1999 Sheet 8 of 11


EE
8 BIT
16 BIT
U900A
U910A
28CXXXV_PLCC32
ADD FOR RAS AND SET FOR 16 BITS
U11
U12
PA7024V_PLCC28
SPARE PAL#1
SPARE PAL#2
PADS FOR WIRES
J5A DIN JACK_E
J5A OR J5
J5 MINIDIN3_5
3 PIN = 3,5,7
5 PIN = 1,3,5,6,8
PINS 2 & 4 ARE OMITTED
FB4 BEAD
FB5 BEAD
POWIN
POWRT
R145 0
EARTH
POWER IN
C76 47uF
C77 .1
D4
D3 ZENER_6R2V
RECT_1RSA
VCC
1.25" SQ. PATTERN FOR HEAT SINK.
U800A MIC2940A_TO263
C800 .1
C801 600mA 47uF
3.3V SUPPLY
R803 0_1206
PLACE C29E & C29F CLOSE TO U29.
U29 TC1015_SOT23A5
C29 4.7uF
C29F 470pF
2.5V
CVDD
NETARM CORE VDDC
2.5V SUPPLY
NOT ON REVA & REV B PCB
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM EE Memory, Power, & Spares
Size B
Document Number S2NCCPT9.SCH
REV B
Date: August 3, 1999 Sheet 9 of 11



NETsilicon, Inc., Waltham, MA 02452-8414		
Title: NET+ARM Expansion & Dipswitches		
Size: B	Document Number: S2NCCPTA.SCH	REV: B
Date: August 3, 1999	Sheet 10 of 11	


LUCENT 3V
ECO REV A
O.K. REV B
3.3V
R227
1.5K
EMI FINE TUNING
NORMALLY OMITTED
25MHZ_FPX_SM
Y3
C220 22pF
C221 22pF
C242 .1
C243 .001
C244 5pF
C245 5pF
TPCF
R222 54.9 1%
R223 54.9 1%
U6
TPIF
CTR100
SHIELD
UPTR
TPOF
TXMR10/100SM16
CTT100
R108 75 1%
R102 75 1%
R109 75 1%
R103 75 1%
FA78
FA45
J2A
CONRJ45SH
EARTH
C1000 .001_500V_1206
EMI ADJUST
R100
R101
R226 0
49.9 1% C226
MDC
MDIO
TXER
TXEN
COL
CRS
ELBK
EDTD
ELINK
ETEN
ECOL
ECD
ETCLK
ETXD
EPDN-
ENTH
THIN
ERCLK
ERXD
MANSEN
EJAB
ERPOL
LINK-
AUTMAN
TXCLK
TXD0
TXD1
TXD2
TXD3
RXCLK
RXD0
RXD1
RXD2
RXD3
RXER
RXDV
R94 56
R125 56
R126 56
R127 56
R128 56
R93 56
R92 56
R91 56
R90 56
R89 56
R22 0
R125-128 CLOSE TO NCC
2
U220A
LUCENT3V_MQFP80
TPIP
TPIN
TPON
TPOP
FIBON
FIBOP
FIBIN
FIBIP
FODN
FODP
SRL10/FODP
VDDT (PLANE)
VDDC (PLANE)
VDDR (PLANE)
VDDT
VDDC
VDDR
SB13
SB12
SB14
BEAD_1806
PLACE C232 NEAR SB13
PLACE C234 NEAR SB12
C223 .1
C228 .01
C232 10uF
C224 .1
C246 4.7uF
C225 .1
C230 .01
C234 10uF
R224
3.3V
MDINT-
MDINT/PHY2
MIIENA
LEDF/10HDEN
LEDS/10FDEN
LEDC/4B5B
LEDL/ALIGN
LEDT/BPSCR
LEDR/NDRTPR
TPTXTR
CIMEM/CFDEN
FOSEL
100HDEN
AUTONEN
PHY0
PHY1
RESET
EQVDD1
VDD5
VDD1
VDD2
VDD8
VDD4
VDD6
XTLVDD
CSVDD
RVDD
CSGND
GND10
EQGND1
XTLGND
RF10
RF100
LEDS
LEDL
PORTC0
PORTC6
R95 2.4K
R96 2.4K
R23 0
R225 10K
R98 2.4K
HRESET-
R220 301 1%
R221 4.64K 1%
C236 10uF
C222 .1
C239 .1
C240 .1
C241 .1
C237 10uF
C238 .1
REMOVE R22-23 IF USED BY EXP CONN
PHY ADDR=00100
PLACE C236-237 NEAR U220A.20-21 & 40-41;
C222,238-241 NEAR PINS 10,20,30,45,56.
NOTES:
FOLLOWING RESET OF THE LUCENT PHY:
__AUTO NEGOTATION IS DISABLED
__ENCODER IS ENABLED
__SCRAMBLER IS ENABLED
__10BASE-TX IS SELECTED
__MODE IS SET FOR MDIO CONTROL
PORT C INPUTS:
__HARDWARE INTERRUPT TO NCC PORT C0, (40ns NEGATIVE PULSE)
__"LINK STATUS" TO NCC PORT C6, (ACTIVE HIGH)
PORT C OUTPUTS:
__RESET TO LUCENT, (PORT C4)
NETsilicon, Inc., Waltham, MA 02452-8414
Title
NET+ARM 10/100BASETX
Size B
Document Number S2NCCPTB.SCH
REV D
Date: August 3, 1999 Sheet 11 of 11

3. NET+Works Development Board Bill of Materials

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0005907	U400A, 430A	FLASH ROM 512K X 16 3.3V	AMD	AM29LV800B-90EC
0006950	U900A	EEPROM 8K X 8 3.3V PLCCC	ATMEL	AT28LV64B
0041785*	U700A, 710A, 720A, 730A	DRAM 64M 4M X 16 3.3V TSOP50	NEC	UPD4264165G5-A60-7JF
0041906**	U750, U760	SDRAM 64M X 16 3.3V 10ns/66MHz	Micron	MT48CL4M16A2
103195	U7A	IC 74LVX32 3.3V QUAD 21	Motorola	MC74LVX32MX
113060	U8A	IC 74LVX244 8BIT SOIC20	Texas Instruments	SN74LVC244ADWR
122010	U950, 960	IC XCVR RS232 SOIC24 HI	Harris	HIN208IB
122011	U9	IC RS232 QUAD REC 1489	Texas Instruments	SN75189HDR
0122915*	U6	IC TRANSFORMER 100 BASE TX	Oasis	XMS0105
0122925	U5A	IC MAX811 VOLT MONITOR 4 PIN SOT-143	MAXIM	MAX811MEUS-T
0122926	U220A	IC 10/100 PHY MII 3.3V	Lucent	LU3X31FT-J80-DB
0125906	U500	IC 74FCT 162245 XCEIVER SSOP48	CYPRESS	474FCT162245TPVC/CTPVC/ATPVC
0125907	U150, 160	IC 74FCT 162646 XCEIVER SS0P56	CYPRESS	CY74FCT162646TPVC/ATPVS/CTPVC
0133020	U800A	REGULATOR LDO 1.25A 3.3	MICREL	MIC2904A33BY
0136951A	U100 (12-1)	IC NCC ATMEL #55595B 12	ATMEL	55595B
0136962	U100 (15)	IC ATMEL	ATMEL	56504D-03

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0136972	U100 (40)	IC ATMEL	ATMEL	56504D-02
0143900	D4	DIODE 1.5A RECTIFIER SOD-87 (SM)	PHILIPS	BYD17D
0140910	D100-126	DIODE DUAL SCHOTTKEY SO	DIGIKEY	BAT54CCT-ND
0163110	SW1-4	SWITCH SPST 8POS 1/2 PITCH DIP 16 PIN	C & K	TD08H0SK1
0174900	U6, 7, U460A, U470A	SOCKET PLCC32 LOW PROFILE (SM)	AMP	3-822273-1
0175903	Y3	CRYSTAL 25 MHZ FUNDAMENTAL 20 pf SM	FOX	FPX-SM25
0179903	Y1A	Oscillator	Ecliptek	EP2600-TTS-33.1776M *or* EC2600-TTX-33.1776M
0190900	FB4-11	FERRITE BEAD 90Z @ 100MHZ (SM)	FAIR-RITE	2743021446
0190903	TB6, TB8-11**	FERRITE BEAD 750Z 100MHZ SM 0805	MURATA	BLM21B751SPT
0190950	SB1-5, 12-14	EMI FILTER FERRITE CHIP EIA 1806	MURATA ERIE	BLM41A800SPT
0263901	C220, 221	CAP 22 PF 50V 5% 0603	Any XR7	
0268901	C1000	CAP .001 MFD 500V 20% X7R (SM 1206)	VIT	VJ206Y102KXEMT
0268902	C71-74, 78-81, 114, 243	CAP .001 MFD 50V 10%	Any XR7	
0270901	C111, 228, 230	CAP .01 MFD 50V 10% 0603	Any XR7	

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0272903	C5, 22, 65, 77, 100-103, 105-108, 112, 150, 151, 160, 161, 222-226, 238-242, 400, 401, 430, 431, 460, 470, 500, 501, 700*, 701*, 710*, 711*, 720*, 721*, 730*, 731*, 740-745**, 800, 900, 951-955, 961-965	CAP .1 MFD 16V 10% 0603	PANASONIC	ECS-HIVY104R
0280950	C232, 234, 236, 237	CAP 10 MFD 10V 10% (SM CASE SIZE C)	KEMET	T491C106K010AS
0284902	C64	CAP 56 PF 50V 5% 0603	ANY	
0288001	C104, 113, 246, 950, 960	CAP 4.7 MFD 16V 20% SIZE B TANTALUM	ROHM	TCFGBIC475K8R
0288901	C2, 70, 76, 95, 801	CAP 47 UF 10V 20% (SM CASE D)	KEMET	T491D476M010AS or 20AS
0301004	DZ1, 2	SURGE PROTECTOR 300W 5V SOT-23	ITT	BAT54ACT- ND
0370902	R22, 23, 43, 132,145, 226, 1000, 1002, 1006, 1028, 1031	RES 0 OHM 5% 0603	ANY	

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0371902	R11-13, 15, 16, 42, 77, 78, 89-94, 125-128, 1011, 1015-1018**	RES 56 OHM 5% 1/16W 0603	ANY	
0372902	102, 103, 108, 109	RES 75 OHM 1% 1/16W 0603	ANY	
0377902	R1, 65, 84, 139, 140	RES 100 OHM 5% 1/16W 0603	ANY	
0384901	R7, 8	RES 220 OHM 5% 1/16W 0603	ANY	
0388031	R54	RES 33 OHM 5% 1/16W 0603	ANY	
0388100	R220	RES 301 OHM 1% 1/16W 0603	ANY	
0400002	RP3-6, 13	RES NETWORK 4.7K OHMS 1/16W 5%	ROHM	MNR35-J5R-J472
0400020	RP10	RES NET 10K OHM 1/16W 5% SM	ROHM	MNR35-J5R-J103
0400021	RP1	RES NET 1K OHMS 1/16W 5% SM	ROHM	MNR35-J5R-J102
0400028	R227	RES 1.5K 5% 1/16W 0603	ANY	
0400032	RN6, 7	RES NET 1K 10-PIN SIP	DIGIKEY	770-103-R472-ND
0400034	R221	RES 4.64K OHM 1% 1/16W	ANY	
0400035	R224	RES 1 OHM 5% 1/16W 0603	ANY	
0400904	R3, 6, 9, 10, 45-53, 59, 60, 64, 66, 71, 72, 83, 85, 120, 129, 130, 131, 138, 146, 147, 167, 168, 190, 191, 200-205, 1019**	RES 1K OHM .10W 5% (SM 0805)	ANY	

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0416902	R25-27, 29-40, 63, 67, 86, 136, 137, 1012	RES 4.7K 5% 1/16W 0603	ANY	
0416906	R100, 101	RES 49,9 OHM 1/16W 1%	ANY	
0424904	R158, 225, 1013, 1014	RES 10K 5% 1/16W 0603	ANY	
0425902	R149	RES 15 OHM 1/10W 5% SM 0805	ANY	
0432902	R44, 95, 96, 98, R1020-1023**	RES 2.4K 5% 1/16W 0603	ANY	
0444901	R222, 223	RES 54.9 OHM 1% 1/16W 0603	ANY	
0602000	DL1	LED GREEN	LITEON	LTL-10233
0607002	DL2	LED YELLOW T1 3/4 STD D	KINGBRIGHT	L73YD
0700004	J2A	CONN RJ45 8 POS SHIELDED	AMP	556591-1
0705000	J5A	CONN DIN JACK 5 CONTACT 180 DEGREES	SINGATRON	DJ-021-5P
0770750	P5	CONN DUEL DB25 FEMALE	AMP	747867-7
0770755	P7	CONN DUAL DB25 X 2 M/M	AMP	227161-9
0772002	J14	CONN 96 PIN STRAIGHT SOCKET 3 ROW	AMP	535043-4
0772003	RN5-8	SOCKET 10 PIN SIP STRAIGHT	AMP	643642-3
0777305	P17-26	HEADER 20-PIN 10 X 2 2M	AMP	176264-9
0777550	P16	HEADER 50-PIN BOX 4 ROW	MOUSER	544-50NFHL-12GT
0778000	P8, 9, 27-29	HEADER 3X8 TERMINAL STR	FAI TECH	307-53-08-G2
0790001	JP1, 6, 7, 9-14	HEADER 3PIN SINGLE ROW STRAIGHT	SINGATRON	2201-3-S-02
0790012	P2	HEADER 7X2 (DOUBLE ROW) STRAIGHT	SIGNATRON	2202-14-S-02
0791000	JP1,6,7,9-14	JUMPER MINI 2-POSITION .1"SPACING	DUPONT/BERG	6547-004(005)

Table 3-1: NET+Works Development Board Parts and Suppliers

Part No.	Ref. Des.	Description	Supplier	Supplier P/N
0791001	P8,9,27-29	SHUNT (JUMPER) 2X8 .1	FAI TECH	MJX-MD-8
1077000	J5A	SCREW 2-56 MACH 1/4"L SLOT RD ST/ST	ANY	
1510900	DL1,2	STANDOFF NETSPRINT LED	RICHCO	S2E-10-01

* NET+12-1 only.

** NET+15/40 only.

Table 3-2 - Alternate Parts and Suppliers

Part No.	Supplier	Supplier P/N	Supplier	Supplier P/N	Supplier	Supplier P/N
0122915	NPI	6170-30				
0125906	PRICOM	74FCT162245ATV/BTU/CTV	IDT	474FCT162245	QUALITY SEMI	QS74FCT2245TPV/ATPV
0125907	IDT	IDT74FCT162646TPVC/ATPV/CTPV	PERICOM	PI74FCT162646 ATV/BTU/CTV	QS	QS74FCT 2646 TPV (ATPV)
0175902	EPSON	MA406-18.432MBG	VALPY FISHER	VFSMC-3		
0175903	EPSON	MA406-25.000MBG	HEC	HEC-3A-25MHZ-20PF-50PPM		
0190900	ACT	FB863226-Y7				
0272901	AVX	12065C104KATMA	KEMET	C1206C104K5RAC		
0280950	SPRAGUE	293D106X910C2T	SPRAGUE	293D106X9016C2T		
0281901	AVX	TAJD226M016R	KEMET	T491D226M016AS	SPRAGUE	293D226X9020D2T
0288001	AVX	TAJB475KO16R	SPRAGUE	293D475X9016B2T	KEMET	T491B475KO16AS
0288901	AVX	TAJD476MO10R	PANASONIC	ECSH1AD476R	NIC	NTC-T476M16RD
0301004	DIODES, INC	BAT54A	ITT	BAT54ATR-7	VISHAY-LITEON	BAT54A
0400002	PANASONIC	EXB-A10P472J	ROHM	MNR35-J5R-J472	DALE	CRA12E1206472J

Table 3-2 - Alternate Parts and Suppliers

Part No.	Supplier	Supplier P/N	Supplier	Supplier P/N	Supplier	Supplier P/N
0400020	PANASONIC	EXB-A10P103J	DALE	CRA12E1206 472J		
0400021	PANASONIC	EXB-A10P102J				
1510900	KEYSTONE	7375				