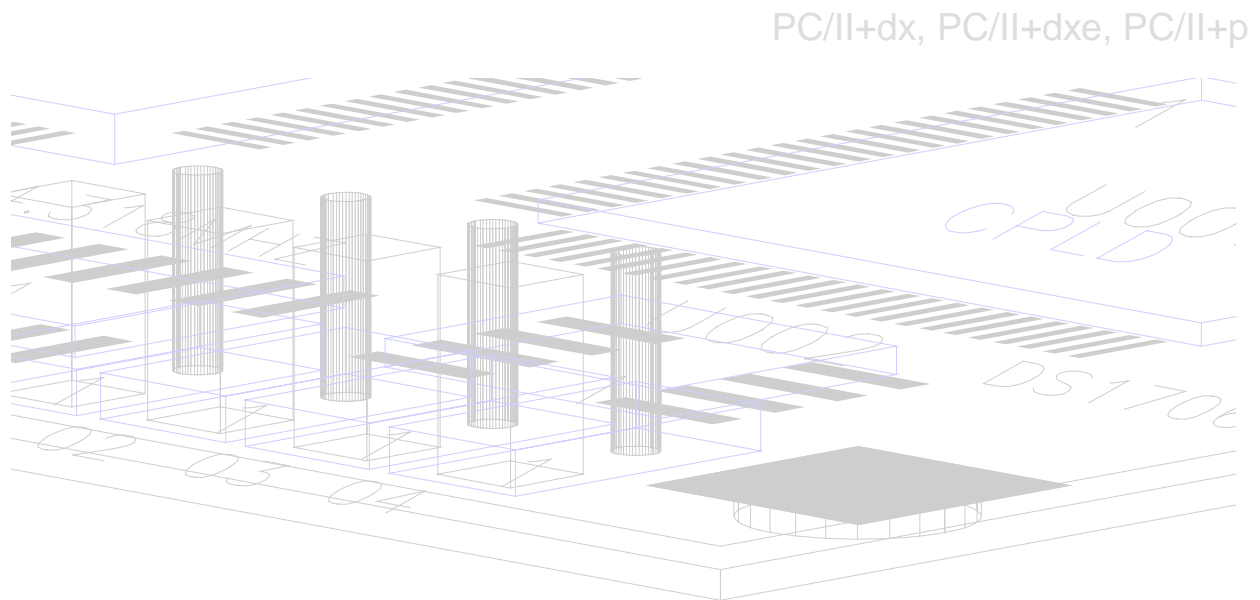




Ethernet Appbook

for the PC/II+dx, PC/II+dx_e and PC/II+p 10Base-T & AUI



Application Note

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To Contact Us

Megatel Computer Corporation, 125 Wendell Ave, Weston, ON M9N 3K9, Canada

Tel:+1 416 245-2953 Fax:+1 416 245-6505 Toll Free: 1-888-SMALL-PC

Website:<http://www.megatel.ca> Email: sales@megatel.ca

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1 Overview

This application note describes how to connect the Ethernet cable for Cirrus Logic (Crystal) CS8900 based 10Base-T and AUI interfaces in Megatel products, and how to setup drivers and configure the CS8900 Ethernet Controller. It applies to Megatel boards that contain the CS8900 Ethernet controller, and operate at 10 Mbit/sec.

1.1 Board Families

This application note applies to the following Megatel board families:

Board Family	Ethernet I/O	General I/O
104Family	2x5 .100 inch pitch header	Mass I/O Connector - 5x33 2mm pitch H.M. IEC
4x4Family	2x5 .100 inch pitch header	Peripheral I/O - 3x32 .100 inch pitch DIN

Table 1 Megatel Board Families Using CS8900-Based Ethernet

1.2 Board Models

This application note applies to the following Megatel boards:

Board Model	Board Status	Board Family	Board Description	Ethernet Connector Identifier
PC/II+dx	Production	Megatel 104Family	486DX5 Based Embedded Computer	J005
PC/II+dx	Production	Megatel 4x4Family	486DX4 Based Embedded Computer	J903
PC/II+p	Production	Megatel 104Family	Pentium Based PC/104 Embedded Computer	J905

Table 2 Megatel Boards Using CS8900-Based 10Base-T & AUI Ethernet

Unless otherwise indicated, "CPU board" refers to one of the above boards in this application note.

1.3 Megatel Reference Documents

This Application Note is intended to supplement the following documents. Please refer to the latest revisions of these documents for more detailed information concerning the CPU board.

MT002100c	QTB/Dxp Side-Mount Accessory I/O Interface Board
MT001810b	PC/II+dx Single-Board PC/104 Computer Technical Reference Manual
MT002427	PC/II+dx Single-Board Embedded Computer Technical Reference Manual
MT002613	PC/II+p Socket 7 Class Embedded Modular Computer for Low-Power Applications Technical Reference Manual

1.4 Other Reference Documents

Cirrus Logic	CS8900A Datasheet, DS271PP3, Mar 99
Cirrus Logic	CS8900A Controller Technical Reference Manual, AN83REV2, Apr 99

2 Hardware Considerations

This section covers cabling, the use of the QTB/Dxp and Ethernet Paddle boards, and information required for custom Ethernet applications.

2.1 Cable Connections

Megatel CPU Boards are shipped with 10Base-T, AUI, or both interfaces. All Ethernet signals are pulled to an on-board 10-pin (2x5 .100 inch pitch) connector ("Ethernet Header") that is identified for each board in [Table 2](#) (for example, on the PC/II+dx board, connector J005 is a 2X5 pin header that provides all Ethernet signals).

2.1.1 Ethernet Transition Cable

A separate cable is used between the CPU board and the transition or paddle board. This cable is typically a straight socket cable consisting of two 10-pin sockets on a 10-conductor 28 AWG ribbon cable. Megatel can supply this cable if required.

2.1.2 AUI Cable

This cable allows an AUI connection using DB15 to be made to transition boards that contain a 16-pin AUI header. One end contains a 16-pin (2x8 .100 inch pitch) socket that attaches to the transition board, and the other end contains a 15-pin D-shell (DB15) female connector into which the AUI network cable is plugged.

2.1.3 Interconnect Choices

Based upon the Board Family, these choices are available from Megatel.

Board Family	Interconnect Method	10Base-T	AUI	Reference
104Family	Megatel QTB/Dxp Transition Board	RJ45	HDR-16	Section 2.2 Using the Megatel QTB/Dxp Board
	Megatel Ethernet Paddle Board	RJ45	DB15	Section 2.3 Using the Megatel Ethernet Paddle Board
	Your Custom Board	-	-	Section 2.4 Using a Custom Ethernet Connection
4x4Family	Megatel Ethernet Paddle Board	RJ45	DB15	Section 2.3 Using the Megatel Ethernet Paddle Board
	Your Custom Board	-	-	Section 2.4 Using a Custom Ethernet Connection

Table 3 Interconnect Choices

2.2 Using the Megatel QTB/Dxp Board

For 104Family CPU Boards, a simple and easy-to-implement solution for connecting to Ethernet is one which uses the Megatel QTB/Dxp transition board. This board not only provides proper headers for the 10Base-T and AUI cables, it also provides connectors for standard computer I/O.



The board can be ordered with any combination of connectors required by you, in either volume quantities or in small quantities.

The QTB/Dxp board attaches to the 104Family CPU Board by means of a right-angle connector on both the SBC board and the QTB/Dxp board (the Mass I/O Connector - shown as the white connector at the top of the board in the diagram to the left).

The Ethernet signals are cabled separately from the CPU Board due to the analog nature of their signals. A separate straight 10-pin cable (Ethernet Transition Cable) is used directly between the Ethernet Header on the

CPU Board and J18 on the QTB/Dxp board.

Refer to Section [5 Board Layouts](#) for the location of these headers.

The following subsections describe the steps to take to make a 10Base-T and AUI connection using the QTB/Dxp board.

2.2.1 QTB/Dxp: Connecting to 10Base-T

To make a connection to a 10Base-T network using a Megatel QTB/Dxp board,

1. Ensure the straight 10-pin Ethernet Transition cable is inserted between the Ethernet Header (2x5, .100 inch pitch) on the CPU board and J18 (2x5 .100 inch pitch) header on the QTB/Dxp board.
2. Insert the standard 10Base-T RJ45 plug into J17 on the QTB/Dxp board.

2.2.2 QTB/Dxp: Connecting to AUI

To make an AUI connection using a Megatel QTB/Dxp board,

1. Ensure the straight 10-pin Ethernet Transition cable is inserted between the Ethernet Header (2x5 .100 inch pitch) on the CPU board and J18 (2x5 .100 inch pitch) header on QTB/Dxp board.
2. Ensure power is supplied through the Ethernet AUI power connector J15; refer to Section [5 Board Layouts](#) for the location of all headers on QTB/Dxp.
3. Connect the 16-pin AUI connector to the 16-pin (2x8 .100 inch pitch) J16 AUI header, on the QTB/Dxp board. Alternatively, an AUI 16-pin to DB15 can be used (Section [2.1.2](#)).

2.3 Using the Megatel Ethernet Paddle Board

The Megatel Ethernet Paddle Board is a small PCB that allows standard Ethernet RJ45 and DB15 connections to be made to the CPU board to which the Paddle board is attached. While it was designed to provide connectors on the 4x4Family of boards, it is as well used on the 104Family of boards.

The Ethernet Paddle board consists of

- a 4-pin 3.5" floppy-style power connector
- a 10-pin (2x5 .100 inch pitch) header for connection to a CPU board
- a 15-pin female D-shell (DB15) connector for AUI connection
- an 8-pin RJ45 (phone jack) for 10Base-T connection
- 2 mounting holes of 0.100 inch in diameter to facilitate mounting

One end of the Ethernet Transition cable attaches to the 10-pin header to provide a connection to the CPU board (the other end of the Ethernet Transition cable attaches to the 10-pin Ethernet Header on the CPU board).

The Ethernet Paddle board measures 3.937" by 0.700", and the mounting holes are 3.487" Center-to-Center. The Ethernet Paddle board can be mounted vertically using one or both of the 0.100" (2.794 mm) diameter mounting holes, metric M2,5 non-conductive screws, washers and stand-offs.

The following subsections describe the steps to take to make a 10Base-T and AUI connection using the Ethernet Paddle board.

2.3.1 Paddle Board: Connecting to 10Base-T

To make a connection to a 10Base-T network using a Megatel Ethernet Paddle board,

1. Ensure the straight 10-pin Ethernet Transition cable is inserted between the Ethernet Header (2x5, .100 inch pitch) on the CPU board and the 10-pin (2x5 .100 inch pitch) header on the Ethernet Paddle board.
2. Insert the standard 10Base-T RJ45 plug into the RJ45 Phone Jack on the Ethernet Paddle board.

2.3.2 Paddle Board: Connecting to AUI

To make an AUI connection using a Megatel QTB/Dxp board,

1. Ensure the straight 10-pin Ethernet Transition cable is inserted between the Ethernet Header (2x5, .100 inch pitch) on the CPU board and the 10-pin (2x5 .100 inch pitch) header on the Ethernet Paddle board.
2. Ensure power is supplied through the Ethernet Paddle Board 3.5" Floppy-style 4-pin AUI power connector. +12V and GND are provided from this power connector to the AUI connector.
3. Connect the DB15 male AUI connector to the DB15 female AUI connector on the Ethernet Paddle board.

2.4 Using a Custom Ethernet Connection

This section provides information needed to allow you to make a customized connection to Ethernet.

The CPU board's Ethernet Header provides the signals from the CPU board. The identifier on each model of CPU board varies, as shown in [Table 4](#) below

Board Model	CPU Board's Ethernet Header Identifier
PC/II+dx	J005
PC/II+p	J905
PC/II+dx	J903

Table 4 Ethernet Connector Identifiers

2.4.1 Ethernet Header Pinout

A diagram of the Ethernet Header is given in [Figure 1](#) below. This header, which is shown in the component top view, is located on the CPU board. Regardless of the type of board, the Ethernet Header pinout and header size/type is identical to that shown in this section.

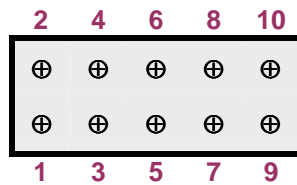


Figure 1 Ethernet Header Pinout - 2x5 Pin .100 Inch Pitch Header

The pinout for the Ethernet Header is given in the following table.

Pin#	Pin Group	Pin Name	Alternative Name
1	AUI	E2-CLSN-	/iCLSN
2	AUI	E2-CLSN+	iCLSN
3	10BASE-T	E1-RD-	RD-
4	10BASE-T	E1-RD+	RD+
5	AUI	E2-RCV-	/iRCV
6	AUI	E2-RCV+	iRCV
7	10BASE-T	E1-TD-	TD-
8	10BASE-T	E1-TD+	TD+
9	AUI	E2-TRMT-	/iTRMT
10	AUI	E2-TRMT+	iTRMT

Table 5 Pinout - Ethernet Header

2.4.2 Mapping 10Base-T to RJ45

The 10Base-T Signals on the Ethernet Header are given below, in [Table 6](#). These signals may be connected to a standard RJ45 connector using the pinout given in [Table 7](#), below.

2.4.2.1 10Base-T Signals

Pin Name	ETH Pin#	Signal Name	Signal Description
E1-RD-	3	Negative Receive Data	Negative Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard 10 BASE T Isolation Transformer (1:1) Pin 16.
E1-RD+	4	Positive Receive Data	Positive Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard 10 BASE T Isolation Transformer (1:1) Pin 14.
E1-TD-	7	Negative Transmit Data	Negative Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard 10 BASE T Isolation Transformer (1:SQRT(2)) Pin 11.
E1-TD+	8	Positive Transmit Data	Positive Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard 10 BASE T Isolation Transformer (1:SQRT(2)) Pin 9.

Table 6 CPU Board's Ethernet Header 10Base-T Signals

NOTES: Field "ETH Pin#" refers to the Ethernet Header on the CPU Board.

2.4.2.2 RJ45 to Ethernet Header Pinout

RJ45 Pin#	Pin Name	ETH Pin#	Signal Name	Signal Description
1	E1-TD+	8	Positive Transmit Data	Positive Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard 10 BASE T Isolation Transformer (1:SQRT(2)) Pin 9.
2	E1-TD-	7	Negative Transmit Data	Negative Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard 10 BASE T Isolation Transformer (1:SQRT(2)) Pin 11.
3	E1-RD+	4	Positive Receive Data	Positive Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard 10 BASE T Isolation Transformer (1:1) Pin 14.
4	N/C		No Connection	Not connected
5	N/C		No Connection	Not connected
6	E1-RD-	3	Negative Receive Data	Negative Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard 10 BASE T Isolation Transformer (1:1) Pin 16.
7	N/C		No Connection	Not connected
8	N/C		No Connection	Not connected

Table 7 RJ45 to Ethernet Header

NOTES:

N/C pins (gray shaded fields) are pins that are not connected to any signal, power or ground.
Field "ETH Pin#" refers to the Ethernet Header on the CPU Board.

2.4.3 Mapping AUI to Header-16 or DB15

The AUI Signals on the SBC Ethernet Connector are given below, in [Table 8](#).

These signals may be connected to an AUI 16-pin header using the pinout given in [Table 9](#), below, or they may be connected to a standard AUI DB15 connector using the pinout given in [Table 10](#), below.

2.4.3.1 AUI Signals

Pin Name	ETH Pin#	Signal Name	Signal Description
E2-CLSN-	1	Negative Collision In	Negative Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 13.
E2-CLSN+	2	Positive Collision In	Positive Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 10.
E2-RCV-	5	Negative Receive Data	Negative Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 10.
E2-RCV+	6	Positive Receive Data	Positive Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 9.
E2-TRMT-	9	Negative Transmit Data	Negative Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 16.
E2-TRMT+	10	Positive Transmit Data	Positive Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 15.

Table 8 CPU Board's Ethernet Header AUI Signals

NOTES. Field "ETH Pin#" refers to the Ethernet Header on the CPU Board.

2.4.3.2 AUI Header-16 to Ethernet Header Pinout

AUI HDR 16 Pin#	Pin Name	ETH Pin#	Signal Name	Signal Description
1	GND		Ground	Ground
2	E2-CLSN-	1	Negative Collision In	Negative Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 13.
3	E2-CLSN+	2	Positive Collision In	Positive Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 10.
4	E2-TRMT-	9	Negative Transmit Data	Negative Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 16.
5	E2-TRMT+	10	Positive Transmit Data	Positive Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 15.
6	GND		Ground	Ground
7	GND		Ground	Ground
8	E2-RCV-	5	Negative Receive Data	Negative Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 10.
9	E2-RCV+	6	Positive Receive Data	Positive Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 9.
10	+12V		+12V	POWER +12V
11	GND		Ground	Ground
12	GND		Ground	Ground
13	N/C		No Connection	No Connection
14	N/C		No Connection	No Connection
15	N/C		No Connection	No Connection
16	N/C		No Connection	No Connection

Table 9 AUI Header-16 to Ethernet Header

NOTES:

Ground and 12V (blue shaded fields) must be supplied externally.

N/C pins (gray shaded fields) are pins that are not connected to any signal, power or ground.

Field "AUI HDR 16 Pin#" refers to the a 16-pin AUI Header.

Field "ETH Pin#" refers to the Ethernet Header on the CPU Board.

2.4.3.3 AUI DB-15 to Ethernet Header Pinout

AUI DB15 Pin#	Pin Name	ETH Pin#	Signal Name	Signal Description
1	GND		Ground	Ground
2	E2-CLSN+	2	Positive Collision In	Positive Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 10.
3	E2-TRMT+	10	Positive Transmit Data	Positive Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 15.
4	GND		Ground	Ground
5	E2-RCV+	6	Positive Receive Data	Positive Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 9.
6	GND		Ground	Ground
7	N/C		No Connection	No Connection
8	N/C		No Connection	No Connection
9	E2-CLSN-	1	Negative Collision In	Negative Differential AUI Collision Input Line, to onboard AUI Isolation Transformer Pin 13.
10	E2-TRMT-	9	Negative Transmit Data	Negative Differential Manchester-encoded Transmit Data Line, 10 Mbps, from onboard AUI Isolation Transformer Pin 16.
11	GND		Ground	Ground
12	E2-RCV-	5	Negative Receive Data	Negative Differential Manchester-encoded Receive Data Line, 10 Mbps, to onboard AUI Isolation Transformer (1:1) Pin 10.
13	+12V		+12V	POWER +12V
14	GND		Ground	Ground
15	N/C		No Connection	No Connection

Table 10 AUI DB15 to CPU Board's Ethernet Header

NOTES.

Ground and 12V (blue shaded fields) must be supplied externally.

N/C pins (gray shaded fields) are pins that are not connected to any signal, power or ground.

Field "ETH Pin#" refers to the Ethernet Header on the CPU Board.

3 Software Considerations & Configuration

This section covers the use of Ethernet drivers, and the Ethernet SETUP utility (shipped on the Distribution CD with the CPU board).

3.1 Standard Ethernet Drivers

Following Ethernet drivers are provided with the Megatel CPU board. These drivers can be found in the Ethernet folder of the Megatel Distribution CD. For Linux operating systems, please contact Megatel.

DRIVER NAME	REVISION
Netware ODI DOS Client	2.62
Netware ODI OS/2 Client	2.59
Netware ODI Server Driver	2.60
OS/2 NDIS2 Driver	2.68
DOS NDIS2 Driver	2.68
Windows NT/95 NDIS3 Driver	3.20
Windows for Workgroup NDIS3 Driver	2.57
Packet Driver	2.55

Table 11 Standard Ethernet Drivers

3.2 Ethernet SETUP Utility

On all Megatel boards containing the Ethernet option, Ethernet is configured by default to use IRQ10 and IO address 0x300. If you need to change the resources used by the Ethernet controller, the ***Ethernet Setup Utility*** can be used. This utility can be found on the Distribution CD that comes with the CPU board.

3.2.1 Running Ethernet Setup

To run this utility, run the command,

D:\ETHERNET\SETUP.EXE (If D is not the drive letter for CD-ROM, change it accordingly)

The Ethernet Setup Utility is self-explanatory; please follow the on-screen instructions.

The following is the brief description of the Ethernet parameters that can be changed by the Ethernet Setup Utility.

3.2.2 Parameter - IRQ (Interrupt Request)

Of the IRQ levels reported by the Ethernet SETUP utility, Megatel CPU boards support those IRQs listed in the following table. Other IRQs are not supported (due to dedicated assignment) and should not be selected for Ethernet.

IRQ LEVEL	Supported by Megatel CPU Board Ethernet Controller
IRQ10	Supported*
IRQ11	Supported**
IRQ 5	Supported

Table 12 Ethernet IRQs Supported

NOTES.

* Default IRQ

** At present, only the PC/II+dx and PC/II+p support IRQ11.
All other IRQs are not supported and should not be used.

3.2.3 Parameter - I/O Port Address

Megatel CPU boards support all of the I/O port addresses reported by the setup utility.

Boards are shipped with the default I/O Address set to 0x300.

3.2.4 Parameter - Shared Memory Address Range

Although the CS8900 Ethernet controller supports (at the chip level) both I/O and Memory access to its shared memory, the standard Ethernet Drivers always access the shared memory using PIO. However, the Megatel CPU board does support both memory and PIO access to shared Ethernet memory.

Memory mapping can be used for the third party drivers. The following table gives all supported memory mappings for Ethernet Shared Memory.

Shared Memory Addresses	Supported / Not Supported
B0000 to CFFFF	Supported if board does not have the Video installed
D0000 to DFFFF	Supported if board does not have the Flash Array installed
E0000 to E7FFF	Always supported
E8000 to EFFFF	Supported if board does not have Disk On Chip installed.

Table 13 Ethernet Shared Memory Mapping

Select this parameter only if a third party driver that requires use of memory access to shared Ethernet memory is being installed.

3.2.5 Parameter - Boot PROM Support

Boot PROM is used to boot remotely from the network server. Megatel CPU boards do not support the remote boot PROM.

This option should never be enabled.

3.2.6 Parameter - Connector Type

This option can be used to set the connector type.

Auto Detection logic first looks for a 10Base-T connector. If both a 10Base-T and an AUI connection are plugged in, Auto Detect logic would find 10Base-T.

The Packet driver or the Linux driver must be restarted after switching from RJ45 to AUI connectors (or vice versa).

The default value for this parameter is Auto Detect.

3.2.7 Parameter - OS Optimization

This setting is used by some of the Ethernet drivers shipped with the CPU board. The drivers that use this settings can be optimized for DOS, Windows or Server.

The default setting for this parameter is DOS.

3.2.8 Parameter - Transmission Control

This parameter can be set to Half Duplex, Full Duplex or Auto Negotiation.

The default setting for this parameter is Auto Negotiation.

4 Trouble shooting Guide

Refer to the following questions to trouble shoot the Ethernet controller.

4.1 Question - My driver can not see the Ethernet Controller?

- Ethernet controller may not be properly configured. Refer to Section [3.2 Ethernet SETUP Utility](#) and check the configuration of the controller.
- Proper driver may not be installed. Refer to Section [3.1 Standard Ethernet Drivers](#) for a driver list. Check the error message returned by the driver.

4.2 Question - My driver can see the controller, but it does not transmit/receive?

- If you are using the Megatel QTB/Dxp transition board, make sure the Ethernet Transition cable (10-conductor straight ribbon cable) is properly installed between the CPU board's Ethernet Header (2x5 .100 inch pitch header) (refer to [Table 2](#) for a list of connector identifiers by Board model) and the header identified as J18 on the QTB/Dxp transition board. Refer to Section [8 Using the Megatel QTB/Dxp Board](#).
- If you are using the AUI connector on the Megatel QTB/Dxp transition board, make sure you supplied power through J15 on the QTB/Dxp board. This power supplies the +12V and GND references to the AUI interface. Refer to Section [2.2.2 QTB/Dxp: Connecting to AUI](#).
- If you are using a custom board to connect the Ethernet cables, verify the pin outs. For information on pinouts, refer to Section [2.4 Using a Custom Ethernet Connection](#).
- Make sure you have a RJ45 or the AUI connector connected to the system.

4.3 Question - My driver comes up with the Media Not Found message?

- Check the Connector Type configuration settings. Refer to Section [3.2.6 Parameter - Connector Type](#).
- Make sure you have RJ45 or the AUI cable connected properly to the system. Refer to Section [4.2](#) above.
- Make sure that the other end of the RJ45/AUI cable is connected to a hub or another system.

4.4 Question - I swapped from RJ45 to AUI (or vice versa) but Driver can not find the Media?

- Check the Connector Type configuration settings. Refer to Section [3.2.6 Parameter - Connector Type](#).
- If you are using Packet Driver or the Linux driver, you need to stop the driver and re start again.
- Restart your system.

4.5 Question - How do You Install the Ethernet Driver under Windows 95/98?

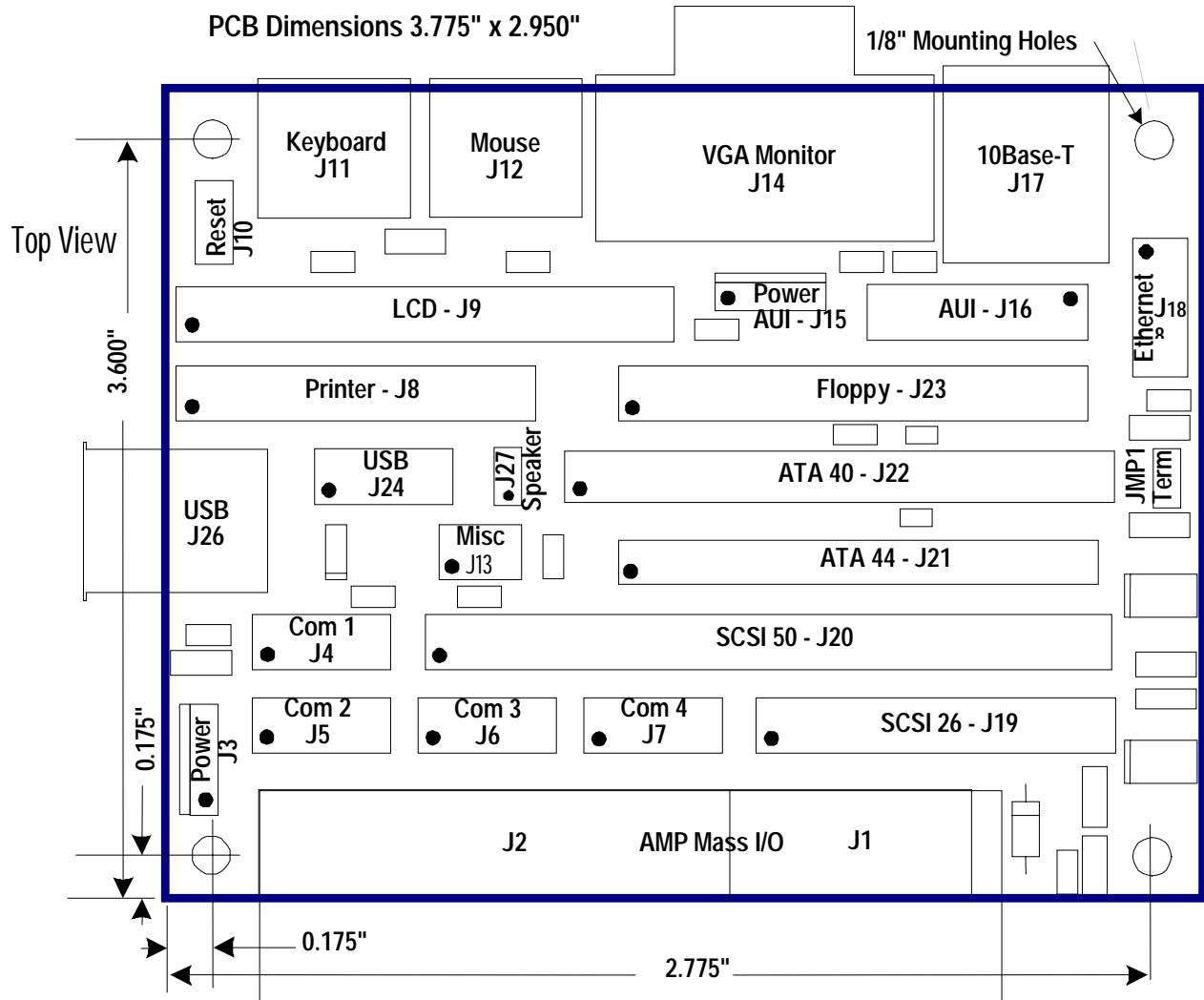
- Under Windows 95/98, go to the Control Panel. Double click on “Add/Remove Hardware”.
- Select the “Network Adapter”.
- Click on “Have Disk”.
- Insert Megatel Distribution CD in to the CD drive, Select “Ethernet” folder on the CD. Click on Ok.
- System will show you a list of drivers. Select “Crystal LAN(tm) CS8900 Ethernet Adapter” from the list.
- Click on Ok. System will copy the necessary files and may ask to re start the system.

5 Board Layouts

This section contains the layouts for the boards referenced in this Application Note. The layout diagrams can be used to locate the referenced headers and connectors.

Board	Diagram	Description
QTB/Dxp	Section 5.1	Transition board for 104Family CPU boards
PC/II+dx	Section 5.2	CPU Board - 486 DX4/DX5
PC/II+dxe	Section 5.3	CPU Board - 486 DX4 (4x4Family)
PC/II+p	Section 5.4	CPU Board - Pentium 166/233/266 Low-Power Series
Ethernet Paddle	Section 5.5	Ethernet Transition board for 4x4Family & 104Family CPU boards

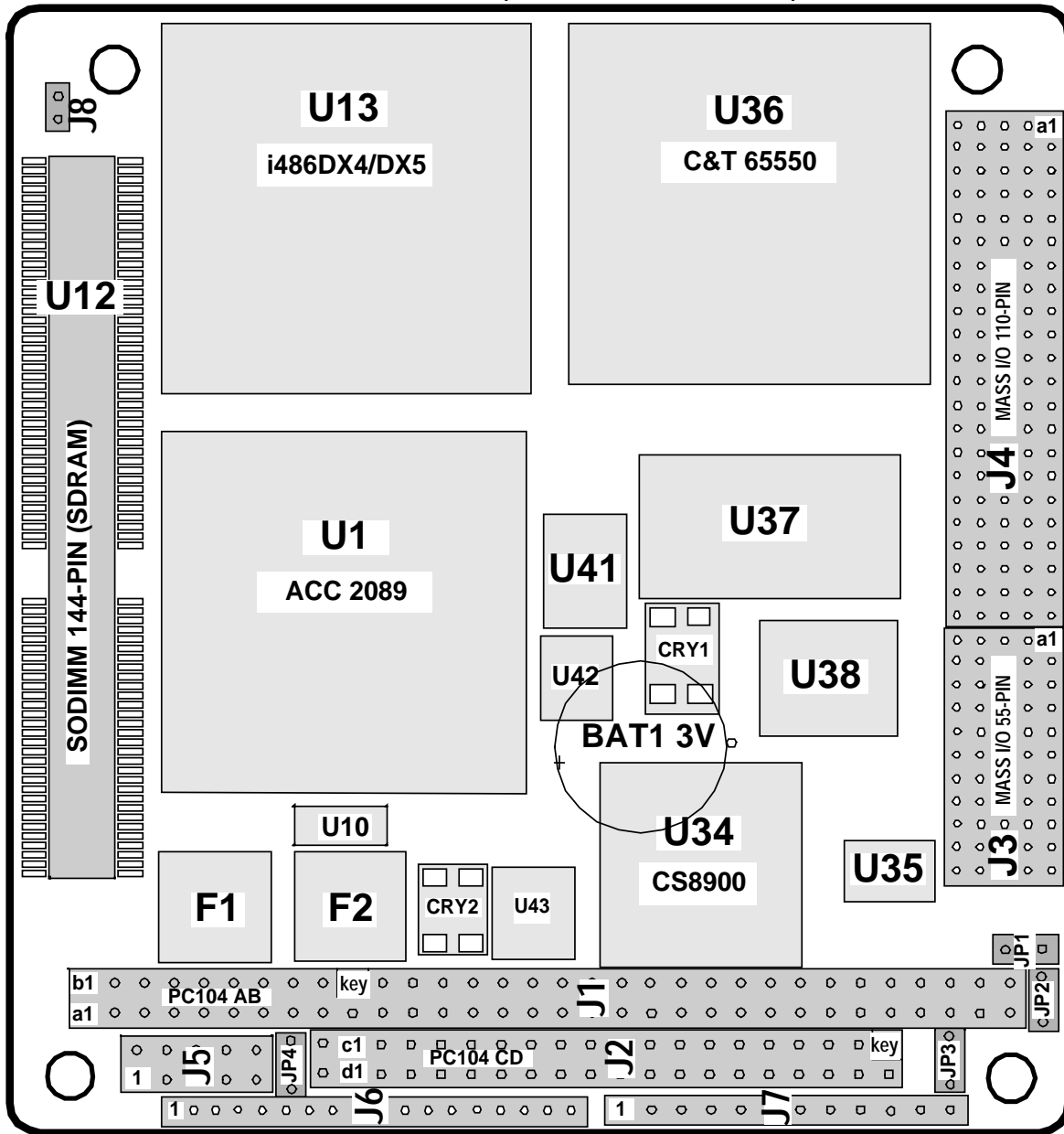
5.1 QTB/Dxp Board



- J15 - AUI Power Header
- J16 - AUI 16-pin Header
- J17 - 10Base-T RJ45 Jack
- J18 - Ethernet Header (from CPU)

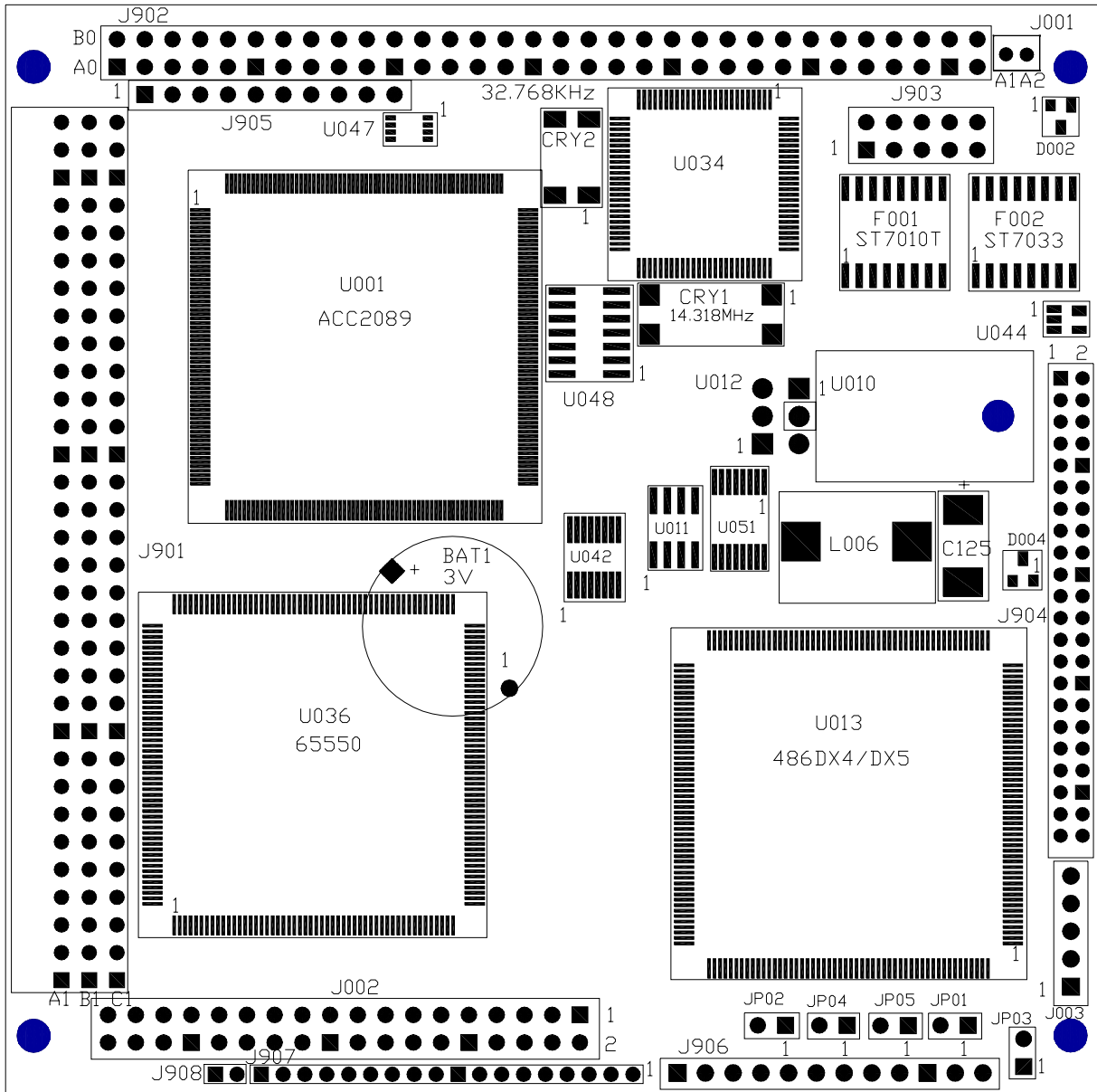
5.2 PC/II+dx (v1.32) Board

PC/II+dx Component Placement - Top Side



J5 - Ethernet Header (to Transition Board)

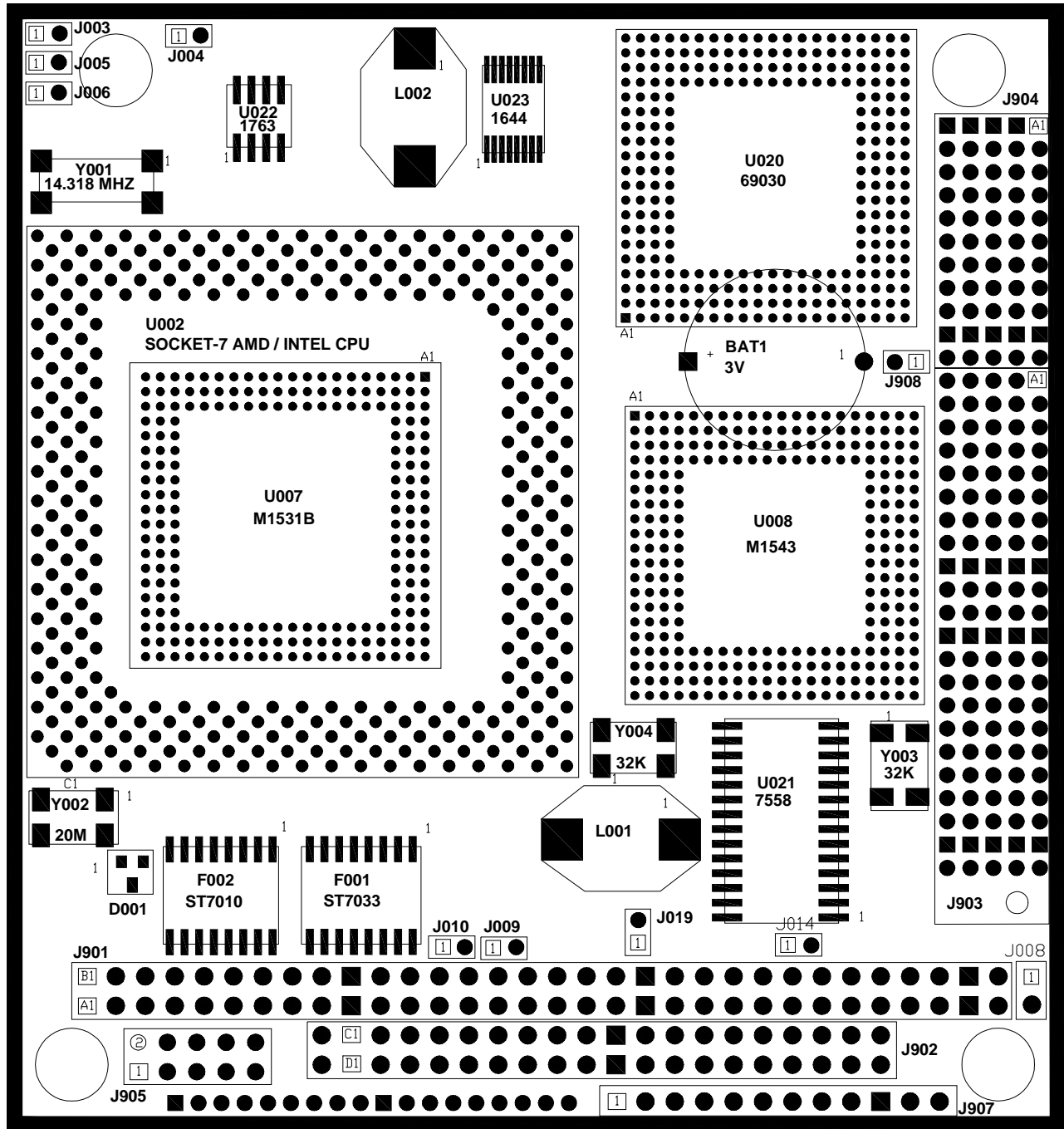
5.3 PC/II+dx (v2.09) Board



D002 - Ethernet Dual LED

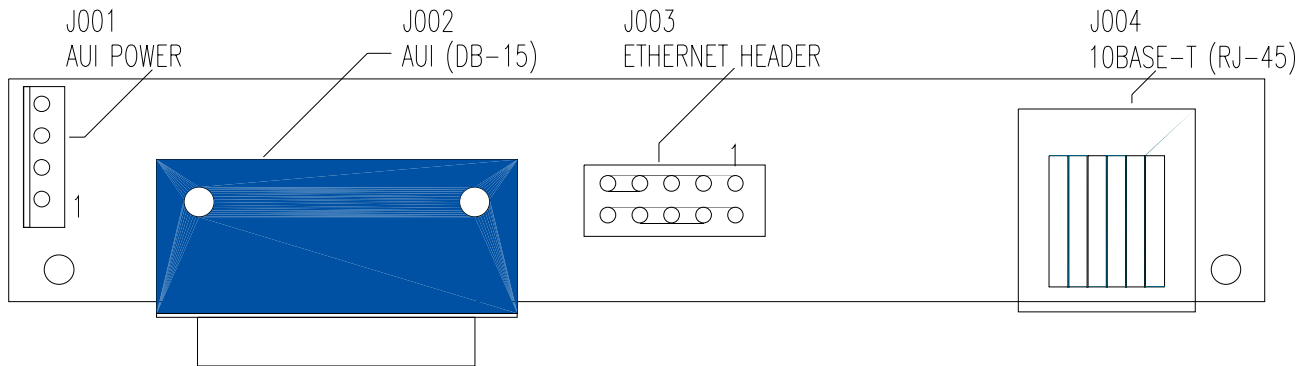
J903 - Ethernet Header (to Transition Board)

5.4 PC/II+P (v2.03) Board



D001 - Ethernet Dual LED
 J905 - Ethernet Header (to Transition Board)

5.5 Ethernet Paddle Board



J001 - AUI Power (3.5" Floppy-Style Power, Male Vertical, Keyed)

J002 - AUI D-shell DB-15 Female

J003 - Ethernet Header (from CPU Board)

J004 - 10Base-T RJ-45 Jack