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Macintosh-to-AT&T 3B2 Cable Pinout (9/94)

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TOPIC -----

A company needs a cable to connect a Macintosh SE, Macintosh II, Macintosh IIX, or Macintosh IICX to its AT&T 3B2. They want to go directly from the Macintosh (mini DIN-8) to an RJ45 female on the 3B2. This is not a dial-in situation. The 3B2 will be in close proximity to the Macintoshes.

DISCUSSION -----

Currently, AT&T terminals direct-connect asynchronously through twisted-pair cabling with RJ45 plugs on each end. On the terminal side, the RJ45 plugs into a hardware flow control plug that snaps onto the back of the terminal. On the 3B2 side, the RJ45 plugs directly into one of the ports on the back of the 3B2. AT&T indicates that the pin configurations on the 3B2 are:

Pin #	Transmission Type
1	SG lead
2	CTS (?) lead
3	TxD lead
4	DTR lead
5	RXD lead
6	DCD lead
7	PG lead
8	RTS (?) lead

The Macintosh Mini DIN-8 port pins have the following correspondent functions required to use them for RS-232:

Mini DIN-8

Pin#	Function	RS-232	Pin#
1	HSKo (Handshake input)	DTR	20
2	HSKi (Handshake output)	DCD	8
3	TxD- (Transmit data, negative going component)	TXD	3
4	GND (Chassis/Signal ground)	GND	7
5	RxD- (Receive data, negative going component)	RXD	2
6	TxD+ (Transmit data, positive going component)	GND	7
7	GPI (General-Purpose input)	NC	

According to AT&T 3B2 pin configurations with RJ45 plugs described above, you can make a cable with the following pinouts and signals for the direct connection between an AT&T 3B2 and a Macintosh SE, Macintosh II, Macintosh IIX, or Macintosh IICX:

Signal (in/out)	Macintosh Mini DIN-8 Pin#		AT&T 3B2 RJ45 Pin#	Signal (in/out)
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HSKo (out)	1	<----->	4	DTR lead (in)
HSKi (in)	2	<----->	2	CTS lead (out)
TxD- (in)	3	<----->	3	TxD lead (out)
GND	*4	<----->	1	SG lead
RxD- (out)	5	<----->	5	RXD lead (in)
TxD+	*6	<----->		
GPI	7	<----->	No Connection	
RxD+	*8	<----->		

*There are many variations for connecting pins 4, 6, and 8, but the basic intent is to bring all three of these pins to ground on the Macintosh side. Connect Signal Ground to Chassis Ground if you want a slightly better noise margin.

If the above configuration doesn't work, try the following cable connection:

HSKo (out)	1	8	RTS lead (in)
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Currently, Tech Comm does not know of an Apple cable product that has been made for this particular configuration (Circular Mini DIN-8 <-> RJ45 plug).

However, if the standard RS-232 DB-25 connectors are directly used in AT&T 3B2, the Apple cable finished product number A2C0311, same as Part Number 590-0331 (beige color), or A2C0312, same as Part Number 590-0555 (smoke color), a circular Mini DIN-8-to-DB-25 cable, can be used for the connection between the 3B2 and the Macintosh.

Because the AT&T 3B2 is a UNIX-based system, any Macintosh under Macintosh OS can be connected via:

- 1) A direct serial line or a modem, and use MacTerminal as a VT100 terminal emulator to access the AT&T 3B2.
- 2) An Ethernet with EtherTalk card (for Macintosh II, Macintosh IIX, or Macintosh IICX) or EtherPort SE card (for Macintosh SE), and use NCSA Telnet or MacTCP software to connect to the 3B2 machine. Of course, the 3B2 must have Ethernet TCP/IP capability.

A Macintosh II, Macintosh IIX, or Macintosh IICX, running A/UX, also can be connected to a 3B2 machine via:

- 1) A direct serial line or a modem by using any UNIX communication software

program, such as "cu", "tip", "uucp", or "kermit", to connect to the remote 3B2 machine.

- 2) An Ethernet with EtherTalk card (for Macintosh II, Macintosh IIX, or Macintosh IICx) by using Internet protocols software, like "telnet", "rlogin", or "ftp". Of course, the 3B2 machine needs to have Ethernet TCP/IP capability.

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