Macintosh Technical Notes

#10: Pinouts

See also: *Macintosh Hardware Reference Manual*
Technical Note #65—Macintosh Plus Pinouts

Written by:	Mark Baumwell	April 26, 1985
Modified:		July 23, 1985
Updated:		March 1, 1988

This note gives pinouts for Macintosh ports, cables, and other products.

Below are pinout descriptions for the Macintosh ports, cables, and various other products. Please refer to the Hardware chapter of *Inside Macintosh* and the *Macintosh Hardware Reference Manual* for more information, especially about power limits. Note that unconnected pins are omitted.

Macintosh Port Pinouts

Macintosh Serial Connectors (DB-9)

Pin	Name	Description/Notes
1	Ground	
2	+5V	See *Inside Macintosh* for power limits
3	Ground	
4	TxD+	Transmit Data line
5	TxD–	Transmit Data line
6	+12V	See Macintosh Hardware chapter for power limits
7	HSK	HandShaKe: CTS or TRxC, depends on Zilog 8530 mode
8	RxD+	Receive Data line; ground this line to emulate RS232
9	RxD–	Receive Data line

Macintosh Mouse Connector (DB-9)

Pin	Name	Description/Notes
1	Ground	
2	+5V	See *Inside Macintosh* for power limits
3	GND	Ground
4	X2	Horizontal movement line (connected to VIA PB4 line)
5	X1	Horizontal movement line (connected to SCC DCDA– line)
7	SW–	Mouse button line (connected to VIA PB3)
8	Y2	Vertical movement line (connected to VIA PB5 line)
9	Y1	Vertical movement line (connected to SCC DCDB– line)

Macintosh Keyboard Connector (RJ-11 Telephone-style jack)

Pin	Name	Description/Notes
1	Ground	
2	KBD1	Keyboard clock
3	KBD2	Keyboard data
4	+5V	See *Inside Macintosh* for power limits

Macintosh External Drive Connector (DB-19)

Pin	Name	Description/Notes
1	Ground	
2	Ground	
3	Ground	
4	Ground	
5	–12V	See *Inside Macintosh* for power limits
6	+5V	See *Inside Macintosh* for power limits
7	+12V	See *Inside Macintosh* for power limits
8	+12V	See *Inside Macintosh* for power limits
10	PWM	Regulates speed of the drive
11	PH0	Control line to send commands to the drive
12	PH1	Control line to send commands to the drive
13	PH2	Control line to send commands to the drive
14	PH3	Control line to send commands to the drive
15	WrReq–	Turns on the ability to write data to the drive
16	HdSel	Control line to send commands to the drive
17	Enbl2–	Enables the Rd line (else Rd is tri-stated)
18	Rd	Data actually read from the drive
19	Wr	Data actually written to the drive

Other Pinouts

Macintosh XL Serial Connector A (DB-25)

Pin	Name	Description/Notes
1	Ground	
2	TxD	Transmit Data line
3	RxD	Receive Data line
4	RTS	Request to Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	Ground	
8	DCD	Data Carrier Detect
15	TxC	Connected to TRxCA
17	RxC	Connected to RTxCA
24	TEXT	Connected to TRxCA

Macintosh XL Serial Connector B (DB-25)

Pin	Name	Description/Notes
1	Ground	
2	TxD–	Transmit Data line
3	RxD–	Receive Data line
6	HSK/DSR	TRxCB or CTSB
7	Ground	
19	RxD+	Receive Data line
20	TXD+/DTR	connected to DTRB

Apple 300/1200 Modem Serial Connector (DB-9)

Modem	Name	Description/Notes
2	DSR	Output from modem
3	Ground	
5	RxD	Output from modem
6	DTR	Input to modem
7	DCD	Output from modem
8	Ground	
9	TxD	Input to modem

Apple ImageWriter Serial Connector (DB-25)

ImageWriter	Name	Description/Notes
1	Ground	
2	SD	Send Data; Output from ImageWriter
3	RD	Receive Data; Input to ImageWriter
4	RTS	Output from ImageWriter
7	Ground	
14	FAULT–	False when deselected; Output from ImageWriter
20	DTR	Output from ImageWriter

Apple LaserWriter AppleTalk Connector (DB-9)

LaserWriter	Name	Description/Notes
1	Ground	
3	Ground	
4	TxD+	Transmit Data line
5	TxD–	Transmit Data line
7	RXCLK	TRxC of Zilog 8530
8	RxD+	Receive Data line
9	RxD–	Receive Data line

Apple LaserWriter Serial Connector (DB-25)

LaserWriter	Name	Description/Notes
1	Ground	
2	TXD–	Transmit Data; Output from LaserWriter
3	RXD–	Receive Data; Input to LaserWriter
4	RTS–	Output from LaserWriter
5	CTS	Input to LaserWriter
6	DSR	Input to LaserWriter (connected to DCBB– of 8530)
7	Ground	
8	DCD	Input to LaserWriter (connected to DCBA– of 8530)
20	DTR–	Output from LaserWriter
22	RING	Input to LaserWriter

Macintosh Cable Pinouts

Note for the cable descriptions below:

The arrows ("→") show which side is an input and which is an output. For example, the notation "a → b" means that signal "a" is an output and "b" is an input.

When pins are said to be connected on a side in the Notes column, it means the pins are connected on that side of the connector.

Macintosh ImageWriter Cable
(part number 590-0169)

Macintosh (DB9)	Name			ImageWriter (DB25)	Notes
1	Ground			1	
3	Ground			7	pins 3, 8 connected on Macintosh side
5	TxD–	→	RD	3	RD = Receive Data
7	HSK	←	DTR	20	
8	RxD+	=	GND		Not connected on ImageWriter side
9	RxD–	←	SD	2	SD = Send Data

Macintosh Modem Cable (Warning! Don't use this cable to connect 2 Macintoshes!)
(part number 590-0197-A)

Macintosh (DB9)	Name			Modem (DB9)	Notes
3	Ground			3	pins 3, 8 connected on EACH side
5	TxD–	→	TxD	9	
6	+12V	→	DTR	6	
7	HSK	←	DCD	7	
8	No wire			8	
9	RxD–	←	RxD	5	

Macintosh to Macintosh Cable (Macintosh Modem Cable with pin 6 clipped on both ends.)

Macintosh (DB9)	Name			Macintosh (DB9)	Notes
3	Ground			3	pins 3, 8 connected on EACH side
5	TxD–	→	RxD–	9	
7	HSK	←	DCD	7	
8	No wire			8	
9	RxD–	←	TxD–	5	

Macintosh External Drive Cable
(part number 590-0183-B)

Macintosh (DB9)	Name	Sony Drive (20 Pin Ribbon)
1	Ground	1
2	Ground	3
3	Ground	5
4	Ground	7
6	+5V	11
7	+12V	13
8	+12V	15
10	PWM	20
11	PH0	2
12	PH1	4
13	PH2	6
14	PH3	8
15	WrReq–	10
16	HdSel	12
17	Enbl2–	14
18	Rd	16
19	Wr	18

Macintosh XL Null Modem Cable
(part number 590-0166-A)

Macintosh XL (DB25)	Name			DTE (DB25)	Notes
1	Ground			1	
2	TxD–	→	RxD	3	
3	RxD–	←	TxD	2	
4, 5	RTS,CTS	→	DCD	8	pins 4, 5 connected together
6	DSR	←	DTR	20	
7	Ground			7	
8	DCD	←	RTS, CTS	4, 5	pins 4, 5 connected together
20	DTR	→	DSR	6	

Macintosh to Non-Apple Product Cable Pinouts

Macintosh to IBM PC Serial Cable #1 (not tested)

Macintosh (DB9)	Name			IBM PC (DB25)	Notes
3	Ground			7	pins 3, 8 connected on Macintosh side
5	TxD–	→	RxD	3	
7	HSK	←	DTR	20	
8	RxD+	=	Ground		Not connected on IBM side
9	RxD–	←	TxD	2	
	CTS	←	RTS	4-5	pins 4, 5 connected on IBM side
	DSR	←	DCD,DTR	6-8-20	pins 6, 8, 20 connected on IBM side

Macintosh to IBM PC Serial Cable #2 (not tested)

Macintosh (DB9)	Name			IBM PC (DB25)	Notes
1	Ground			1	
3	Ground			7	pins 3, 8 connected on Macintosh side
5	TxD–	→	RxD	3	
9	RxD–	←	TxD	2	
	CTS	←	RTS	4-5	pins 4, 5 connected on IBM side
	DSR	←	DTR	6-8	pins 6, 8 connected on IBM side