Peripheral
Interface Guide

Service Technical Procedures

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Peripheral Interface Guide

Introduction

Welcome to the seventh edition of the Apple® Peripheral Interface Guide.

This guide contains interface information—pin-outs, switch settings, cabling requirements, and diagrams of interface ports—for Apple computers, interface cards, and peripherals. This information will help you connect Apple and non-Apple peripherals to Apple computers. The information will also be useful in troubleshooting situations where interface problems may be involved.

The Peripheral Interface Guide contains the following information:

Macintosh, Apple II, Apple III, & Lisa/Macintosh XL Computers
The first three sections contain the specifications for all built-in interface and interface card connectors for the Macintosh, Apple II, Apple III, and Lisa/Macintosh XL families of computers. Each section covers built-in interfaces first, followed by interface cards. Illustrations at the beginning of each section show the locations of the built-in interface connectors. The guide contains pin numbers, signal mnemonics, signal descriptions, and connector types for all connectors. For interface cards that contain option switches, a table lists the functions of the switches and how they should be set to produce various operating characteristics. Any special information related to an interface is noted. Peripheral connection tables at the end of each section indicate cable requirements for connecting compatible peripherals to each computer.

Peripherals
This section covers Apple peripheral devices. Devices are arranged by category—Laser Printers, Non-Laser Printers, Modems and Communications, and Miscellaneous. The pin numbers, signal mnemonics, signal descriptions, and connector types are listed for each device. Option switch functions and settings are listed, with the default (factory) settings shown in bold type.

Cables
Apple peripheral cables with their pin connections are included here. Each cable chart lists the devices that can be connected with that cable. This section also includes diagrams of the various connectors used.

Macintosh Family Computers

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Macintosh Family Computers

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This section contains the specifications for all the built-in interfaces and interface card connectors for the Macintosh family of computers. Built-in interfaces are covered first, followed by interface cards. Illustrations at the beginning of the section show the locations of the built-in interface connectors.

Notes:

A slash (/) after the signal name indicates that the signal is valid when the signal is low.

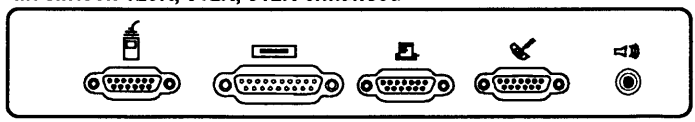
The connector specified is for the cable end, not the computer port.

In the peripheral connections tables, accessory kit part numbers followed by an asterisk (*) include items in addition to the cable (software and/or manuals, for example).

Macintosh Family Computers

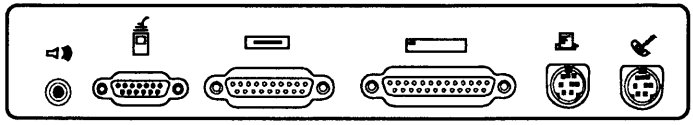
Computer Port Locations

Macintosh 128K, 512K, 512K enhanced



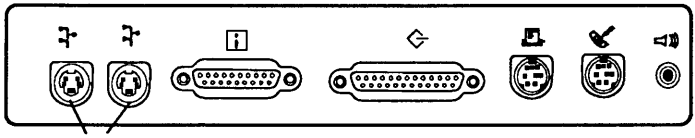
Mouse | External Disk Drive | Printer | Modem | Audio

Macintosh Plus



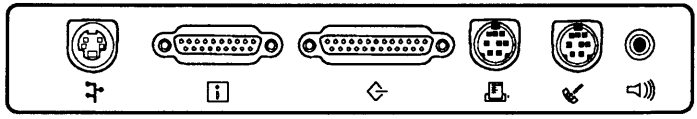
Audio | Mouse | External Disk Drive | SCSI | Printer | Modem

Macintosh SE & SE/30



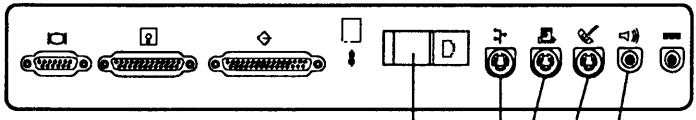
Apple Desktop Bus | External Disk Drive | SCSI | Printer | Modem | Audio

Macintosh Classic



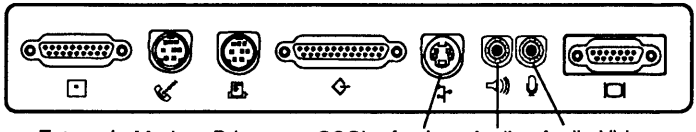
Apple Desktop Bus | External Disk Drive | SCSI | Printer | Modem | Audio

Macintosh Portable



Video | External Disk Drive | SCSI | Internal Modem | ADB | Printer | Modem | Audio | Power Adapter

Macintosh LC

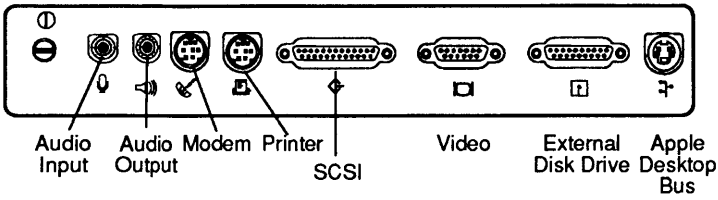


External Disk Drive | Modem | Printer | SCSI | Apple Desktop Bus | Audio Output | Audio Input | Video

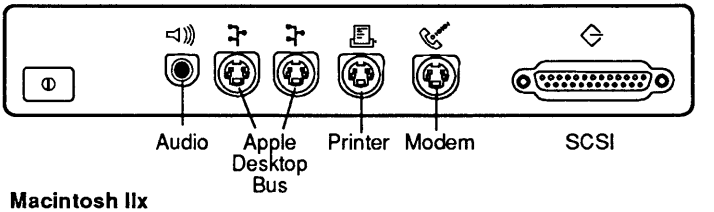
Macintosh Family Computers

Computer Port Locations

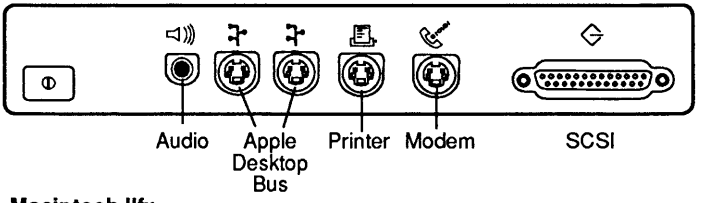
Macintosh IIsi



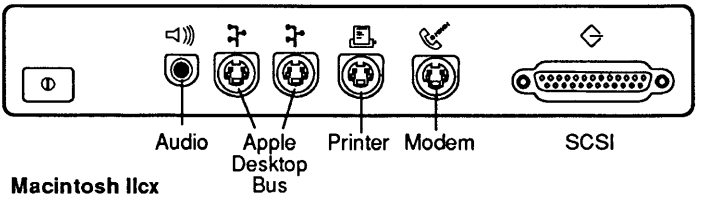
Macintosh II



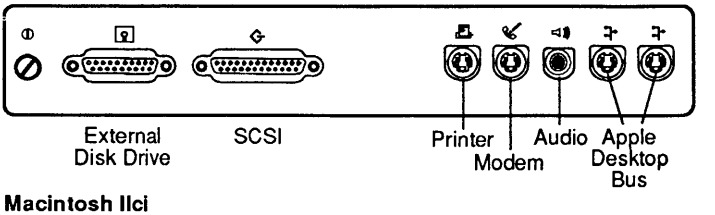
Macintosh IIx



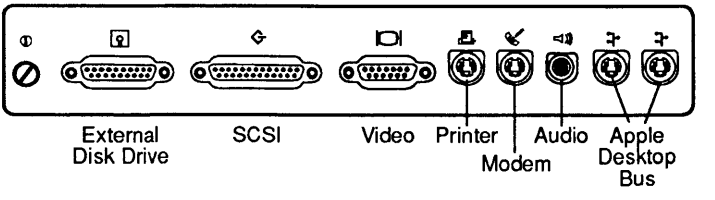
Macintosh IIfx



Macintosh IIcx



Macintosh IIci



Modem and Printer Connectors – DE-9

Pin	Signal Name	Signal Description
1	GND FG	Signal ground Frame ground
2	+5V NC	+5 volts No connection
3	GND SG	Signal ground Signal ground
4	TXD+ NC	Transmit Data + No connection
5	TXD- TXD	Transmit Data - Transmit Data
6	+12V NC	+12 volts No connection
7	HSKi DSR	Handshake input Data Set Ready
8	RXD+ NC	Receive Data + No connection
9	RXD- RXD	Receive Data - Receive Data

Connector type: DE-9 male

The first set of signal names and descriptions listed applies to RS-422. The second set applies to RS-232.

Modem and Printer Connectors – Mini DIN-8

Pin	Signal Name	Signal Description
1	HSKo	Handshake output; connected to SCC Data Terminal Ready
2	HSKi	Handshake input; connected to SCC Clear To Send and Transmit/Receive Clock
3	TxD-	Transmit Data (inverted); connected to SCC Transmit Data; tri-stated when Request To Send is deasserted
4	SG	Signal Ground; connected to logic and chassis ground
5	RxD-	Receive Data (inverted); connected to SCC Receive Data
6	TxD+	Transmit Data; connected to SCC Transmit Data; tri-stated when Request To Send is deasserted
7†	GPi	General-Purpose input; connected to SCC Data Carrier Detect. Not connected on the Macintosh Plus or LC.
8	RxD+	Receive Data; connected to the SCC Receive Data

Connector type: Mini DIN-8 male

This connector is present on all Macintosh computers except the 128K, 512K, and 512K enhanced.

To connect DE-9 cables to the Mini DIN-8 port, use adapter cable 590-0341 (beige) or 590-0553/699-0430 (smoke).

† On serial port A (modem) of the Macintosh SE, SE/30, II, IIx, IIfx, IIcx, IIci, IIsi, and Portable; if the VIA1 SYNC signal is high, this input will be routed to the receive/transmit clock input of the SCC. This clock input supports high-speed synchronous devices. Pin 7 is not connected on the Macintosh Plus or LC.

SCSI Connector (Pins 1-12)

Pin	Signal Name	Signal Description
1	REQ/	Request
2	MSG/	Message
3	I/O/	Input/output
4	RST/	Reset
5	ACK/	Acknowledge
6	BUSY/	Busy
7	GND	Signal ground
8	Data0/	Data bit 0
9	GND	Signal ground
10	Data3/	Data bit 3
11	Data5/	Data bit 5
12	Data6/	Data bit 6

SCSI Connector (Pins 13-25)

Pin	Signal Name	Signal Description
13	Data7/	Data bit 7
14	GND	Signal ground
15	C/D/	Control/data
16	GND	Signal ground
17	ATN/	Attention
18	GND	Signal ground
19	SEL/	Select
20	PARITY/	Data parity
21	Data1/	Data bit 1
22	Data2/	Data bit 2
23	Data4/	Data bit 4
24	GND	Signal ground
25	TERMPRW	+5 volts terminator power†

Connector type: DB-25 male

This connector is present on all Macintosh computers except the 128K, 512K, and 512K enhanced.

Total length of cables should not exceed 20 feet (6 meters).

CAUTION: This interface uses the same type of connector as a standard RS-232 serial interface, but is electrically very different. DO NOT connect RS-232 devices or cables to this connector. Doing so can damage the device and the computer.

† Terminator power is not provided on the Macintosh Plus or Portable.

Apple Desktop Bus Connector

Pin	Signal Name	Signal Description
1	Data	Bidirectional data bus
2†	Power On/	Signal momentarily grounded to pin 4 to begin power-up sequence in CPU
3	Power	+5 volts
4	Ground	Signal Ground

Connector type: Mini DIN-4 male

This connector is present on all Macintosh computers except the 128K, 512K, 512K enhanced, and Plus.

Total length of all cables should not exceed 16 feet (5 meters).

† Only on the Macintosh II family. Pin 2 is unused on all other models.

Keyboard Connector

Pin	Signal Name	Signal Description
1	GND	Ground
2	CLOCK	Keyboard clock (input to VIA)
3	DATA	Serial data line
4	+5V	+5 volts

Connector type: RJ-11

This connector is present on the Macintosh 128K, 512K, 512K enhanced, and Plus.

Mouse Connector

Pin	Signal Name	Signal Description
1	GND	Signal ground
2	+5V	+5 volts DC
3	GND	Signal ground
4	X2	Left-to-right motion indicator
5	X1	Interrupt line (left-to-right motion)
6	NC	No connection
7	SW	Mouse button
8	Y2	Up-down motion indicator
9	Y1	Interrupt line (up-down motion)

Connector type: DE-9 male

This connector is present on the Macintosh 128K, 512K, 512K enhanced, and Plus.

Audio Input Connector

Pin	Signal Name	Signal Description
(Tip)	+8V	+8 volts for powering electret microphone
(Ring)	Right	Audio input with a maximum amplitude of 20 mV at 600 ohms impedance
(Sleeve)	GND	Signal ground

Connector type: Stereo miniature phono plug

This connector is present on the Macintosh LC and IIsi.

Audio Output Connector - Monaural

Pin	Signal Name	Signal Description
(Tip)	AUDIO	.5-volt peak-to-peak audio signal
(Sleeve)	GND	Signal ground

Connector type: Miniature phono plug

This connector is present on the Macintosh 128K, 512K, 512K enhanced, Plus, and SE.

The internal speaker is disabled when this connector is in use.

Audio Output Connector - Stereo

Pin	Signal Name	Signal Description
(Sleeve)	GND	Signal ground
(Tip)	Left	1-volt peak-to-peak audio signal with an impedance of 47 ohms †; left channel
(Ring)	Right	1-volt peak-to-peak audio signal with an impedance of 47 ohms; right channel

Connector type: Stereo miniature phono plug

This connector is present on the Macintosh SE/30, Classic, II, IIx, IIfx, IIcx, IIci, LC, IIsi, and Portable.

The internal speaker is disabled when this connector is in use.

† The Macintosh Portable produces a 0.75-volt peak-to-peak signal.

External Disk Drive Connector

Pin	Signal Name	Signal Description
1	GND	Signal ground
2	GND	Signal ground
3	GND	Signal ground
4	GND	Signal ground
5	-12V	-12 volts DC
6	+5V	+5 volts DC
7	+12V	+12 volts DC
8	+12V	+12 volts DC
9	NC	No connection
10	PWM	Motor speed control
11	PH0	Command control line
12	PH1	Command control line
13	PH2	Command control line
14	PH3	Command control line
15	WRREQ/	Write request
16	HDSEL	Head select
17	ENBL2/	Read line enable
18	RD	Read data
19	WR	Write data

Connector type: DB-19 male

This connector is present on all Macintosh computers except the Macintosh II, IIx, and IIfx.

A Macintosh 400K External Drive can be connected to the Macintosh 128K, 512K, 512K enhanced, Plus, SE, and Portable.

A Macintosh 800K External Drive or an Apple 3.5 Drive can be connected to the Macintosh 512K enhanced, Plus, SE, SE/30, Classic, IIcx, IIci, IIsi, LC, and Portable.

An Apple FDHD External Drive can be connected to the Macintosh SE (with the FDHD upgrade), SE/30, Classic, IIcx, IIci, IIsi, LC, and Portable.

An Apple Hard Disk 20 can be connected to a Macintosh 512K, 512K enhanced, Plus, and SE.

External Video Connector

Pin	Signal Name	Signal Description
1	RED.GND	Red video ground
2	RED.VID	Red video
3	CSYNC/	Composite sync
4	MON.ID1	Monitor ID, bit 1
5	GRN.VID	Green video
6	GRN.GND	Green video ground
7	MON.ID2	Monitor ID, bit 2
8	NC	No connection
9	BLU.VID	Blue video
10	MON.ID3	Monitor ID, bit 3
11	C&VSYNC GND	Composite & vertical sync ground
12	VSYNC/	Vertical sync
13	BLU.GND	Blue video ground
14	HSYNC.GND	Horizontal sync ground
15	HSYNC/	Horizontal sync
Shell	CHASSIS GND	Chassis ground

Connector type: DA-15 male

This connector is present on the Macintosh LC, IIci, and IIsi. All present Apple-manufactured Macintosh monitors, except the Two-Page Display, are supported.

External Video Connector – Macintosh Portable

Pin	Signal Name	Signal Description
1	FPDATA(0)	Flat panel display data bus (bit 0)
2	FPDATA(1)	Flat panel display data bus (bit 1)
3	+5V	+5 volts DC
4	FPDATA(2)	Flat panel display data bus (bit 2)
5	FPDATA(3)	Flat panel display data bus (bit 3)
6	FPDATA(4)	Flat panel display data bus (bit 4)
7	GND	Ground
8	+5V	+5 volts DC
9	GND	Ground
10	FPDATA(5)	Flat panel display data bus (bit 5)
11	FPDATA(6)	Flat panel display data bus (bit 6)
12	FPDATA(7)	Flat panel display data bus (bit 7)
13	BATTVOLTAGE	Direct connect to main battery
14	FLM	Flat panel new frame sync
15	CL2/	Flat panel display data clock

Connector type: DA-15 male

Macintosh Display Cards 4/8, 8/24, and 8/24•GC

Pin	Signal Name	Signal Description
1	RED.GND	Red video ground
2	RED.VID	Red video
3	CSYNC/	Composite sync
4	MON.ID1	Monitor ID, bit 1
5	GRN.VID	Green video
6	GRN.GND	Green video ground
7	MON.ID2	Monitor ID, bit 2
8	NC	No connection
9	BLU.VID	Blue video
10	MON.ID3	Monitor ID, bit 3
11	C&VSYNC GND	Composite & vertical sync ground
12	VSYNC/	Vertical sync
13	BLU.GND	Blue video ground
14	HSYNC.GND	Horizontal sync ground
15	HSYNC/	Horizontal sync
Shell	CHASSIS GND	Chassis ground

Connector Type: DA-15 male

These cards support all present Apple-manufactured Macintosh monitors.

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to any Macintosh Display Card.

Macintosh II High-Resolution and 1-bit Monochrome Video Cards

Pin	Signal Description	Pin	Signal Description
1	Red signal ground	9	Analog blue video
2	Analog red video	10	No connection
3	Composite sync	11	No connection
4	Sync signal ground	12	No connection
5	Analog green video	13	Blue signal ground
6	Green signal ground	14	No connection
7	No connection	15	No connection
8	No connection	(Shield)	Shield ground

Connector type: DA-15 male

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to the Video or Monochrome Cards.

Macintosh II Portrait Display and Two-Page Monochrome Monitor Video Cards (Current Version)

Pin	Signal Name	Signal Description
1	RED.GND	Red video ground
2	RED.VID	Red video
3	CSYNC/	Composite sync
4	MON.ID1	Monitor ID, bit 1
5	GRN.VID	Green video
6	GRN.GND	Green video ground
7	MON.ID2	Monitor ID, bit 2
8	NC	No connection
9	BLU.VID	Blue video
10	MON.ID3	Monitor ID, bit 3
11	C&VSYNC GND	Composite & vertical sync ground
12	VSYNC/	Vertical sync
13	BLU.GND	Blue video ground
14	HSYNC.GND	Horizontal sync ground
15	HSYNC/	Horizontal sync
Shell	CHASSIS GND	Chassis ground

Connector Type: DA-15 male

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to the Portrait Display or Two-Page Monochrome Monitor video card.

Macintosh II Portrait Display and Two-Page Monochrome Monitor Video Cards (Obsolete Version)

Pin	Signal Description
A1	Monochrome video
A2	No connection
A3	No connection
1	Horizontal sync return
2	Vertical sync
3	Sense #3
4	Sense ground
5	Composite sync
6	Horizontal sync
7	Vertical sync return
8	Sense #2
9	Sense #1
10	Composite sync return
Shell	Shell ground

Connector Type: Dartech FM-13W3S male

EtherTalk Interface and EtherTalk NB Cards

Pin	Signal Description	Pin	Signal Description
1	Shield	9	Collision presence -
2	Collision presence +	10	Transmit -
3	Transmit +	11	Reserved
4	Reserved	12	Receive -
5	Receive +	13	Power
6	Power return	14	Reserved
7	Reserved	15	Reserved
8	Reserved		

Connector type: DA-15 male

This connector supports thick coaxial cable with the use of an optional transceiver (not available from Apple).

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, IIII, III Plus, or Macintosh II video cards. DO NOT connect an Apple IIc, IIGS, III, III Plus, or Macintosh II video card device or cable to the EtherTalk Interface Card.

TokenTalk NB Interface Card

Pin	Signal Description	Pin	Signal Description
1	Receive data	6	Receive data
2	No connection	7	No connection
3	No connection	8	No connection
4	No connection	9	Transmit data
5	Transmit data		

Connector type: DE-9 male

Coax/Twinax Interface Card – Coax Connector

Pin	Signal Name	Signal Description
(Tip)	CX+	Transmit/receive data
(Sleeve)	CX-	Signal ground

Connector type: BNC male

Coax/Twinax Interface Card – Twinax Connector

Pin	Signal Description	Pin	Signal Description
1	No connection	9	No connection
2	No connection	10	No connection
3	No connection	11	No connection
4	No connection	12	No connection
5	No connection	13	No connection
6	No connection	14	"B" twinax signal
7	"A" twinax signal	15	No connection
8	No connection		

Connector type: DE-9 female

Serial NB Interface Card (Pins 1-20)

Pin	Signal Name	Signal Description
1	+CA1F	X.21 control, +CHA1, output
2	232TXDA1	Transmit data, CHA1, RS-232, output
3	-CA1F	X.21 control, -CHA1, output
4	1RTSA	Ready To Send, CHA1, RS-232, output
5	1CTSA	Clear To Send, CHA1, RS-232, input
6	+CB1F	X.21 control, +CHB1, output
7	232TXDB1	Transmit data, CHB1, RS-232, output
8	-CB1F	X.21 control, -CHB1, output
9	1RTSB	Ready To Send, CHB1, RS-232, output
10	1CTSB	Clear To Send, CHB1, RS-232, input
11	+IB1	X.21 indication, +CHB1, input
12	232TXDA2	Transmit data, CHA2, RS-232, output
13	2RXDA	Receive data, CHA2, RS-232, input
14	2RTSA	Ready To Send, CHA2, RS-232, output
15	2CTSA	Clear To Send, CHA2, RS-232, input
16	+IA1	X.21 indication, +CHA1, input
17	232TXDB2	Transmit data, CHB2, RS-232, output
18	2RXDB	Receive data, CHB2, RS-232, input
19	2RTSB	Ready To Send, CHB2, RS-232, output
20	2CTSB	Clear To Send, CHB2, RS-232, input

Serial NB Interface Card (Pins 21-40)

21	+422TXCA1	+Transmit clock, CHA1, RS-422, input
22	-422TXCA1	-Transmit clock, CHA1, RS-422, input
23	+422RXDA1	+Receive data, CHA1, RS-422, input
24	-422RXDA1	-Receive data, CHA1, RS-422, input
25	+422RXCA1	+Receive clock, CHA1, RS-422, input
26	-422RXCA1	-Receive clock, CHA1, RS-422, input
27	+422TXDA1	+Transmit data, CHA1, RS-422, output
28	-422TXDA1	-Transmit data, CHA1, RS-422, output
29	+422TXCB1	+Transmit clock, CHB1, RS-422, input
30	-422TXCB1	-Transmit clock, CHB1, RS-422, input
31	+422RXDB1	+Receive data, CHB1, RS-422, input
32	-422RXDB1	-Receive data, CHB1, RS-422, input
33	+422RXCB1	+Receive clock, CHB1, RS-422, input
34	-422RXCB1	-Receive clock, CHB1, RS-422, input
35	+422TXDB1	+Transmit data, CHB1, RS-422, output
36	-422TXDB1	-Transmit data, CHB1, RS-422, output
37	GND_6	Extra ground
38	2TXCA	Transmit clock, CHA2, RS-232, input
39	2RXCA	Receive clock, CHA2, RS-232, input
40	2RXCB	Receive clock, CHB2, RS-232, input

Serial NB Interface Card (Pins 41-62)

Pin	Signal Name	Signal Description
41	GND_5	Extra ground
42	2TXCB	Transmit clock, CHB2, RS-232, input
43	1DSRA	Data Set Ready, CHA1, RS-232, input
44	1DCDA/-IA1	Data Carrier Detect, RS-232/X.21 indication, -CHA1, input
45	1DTRA	Data Terminal Ready, CHA1, RS-232, output
46	1RIA	Ring Indicator, CHA1, RS-232, input
47	GND_4	CHB2 ground
48	1DSRB	Data Set Ready, CHB1, RS-232, input
49	1DCDB/-IB1	Data Carrier Detect, RS-232/X.21 indication, -CHB1, input
50	1DTRB	Data Terminal Ready, CHB1, RS-232, output
51	1RIB	Ring Indicator, CHB1, RS-232, input
52	GND_3	CHA2 ground
53	2DSRA	Data Set Ready, CHA2, RS-232, input
54	2DCDA	Data Carrier Detect, CHA2, RS-232, input
55	2DTRA	Data Terminal Ready, CHA2, RS-232, output
56	2RIA	Ring Indicator, CHA2, RS-232, input
57	GND_2	CHB1 ground
58	2DSRB	Data Set Ready, CHB2, RS-232, input
59	2DCDB	Data Carrier Detect, CHB2, RS-232, input
60	2DTRB	Data Terminal Ready, CHB2, RS-232, output
61	2RIB	Ring Indicator, CHB2, RS-232, input
62	GND_1	CHA1 ground

Connector type: DB-62 male

Macintosh Plus and Later Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ Apple Personal Modem Data Modem 2400 AppleFax Modem	590-0552 or 590-0340	M0197 M0187	Smoke Beige
ImageWriter & IW 15-Inch AppleLine Cluster Controller	590-0169 and 699-0430 590-0553 or 590-0341	M0150 M0199 M0189	Medium brown Smoke Beige
Modem 300/1200	590-0197 and 699-0430 590-0553 or 590-0341	M0170 M0199 M0189	Medium brown Smoke Beige
SCSI Devices – System Cable	658-8031 590-0305 or 590-0345	M0206	Smoke Beige
SCSI Devices – Peripheral Interface Cable (Male to Male)	658-8034 590-0306 or 590-0346	M0207	Smoke Beige
SCSI Devices – Cable Extender (Male to Female)	658-8033 590-0307 or 590-0347	M0208	Smoke Beige
SCSI Devices – Terminator	658-8032 590-0304 or 590-0344	M0209	Smoke Beige

Macintosh 128K, 512K, and 512K enhanced Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ Apple Personal Modem Data Modem 2400	590-0551 or 590-0332	M0196 M0185	Smoke Beige
ImageWriter & IW 15-Inch AppleLine Cluster Controller	590-0169	M0150	Medium brown
Modem 300/1200	590-0197	M0170	Medium brown

Apple II Family Computers

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Apple II Family Computers

Introduction

This section contains the specifications for all the built-in interfaces and interface card connectors for the Apple II family of computers. Built-in interfaces are covered first, followed by interface cards. Illustrations at the beginning of the section show the locations of the built-in interface connectors.

Notes:

A slash (/) after the signal name indicates that the signal is valid when the signal is low.

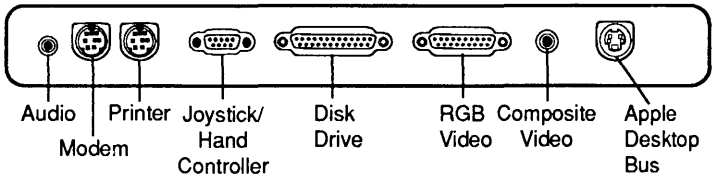
The connector specified is for the cable end, not the computer port.

In the peripheral connections tables, accessory kit part numbers followed by an asterisk (*) include items in addition to the cable (software and/or manuals, for example).

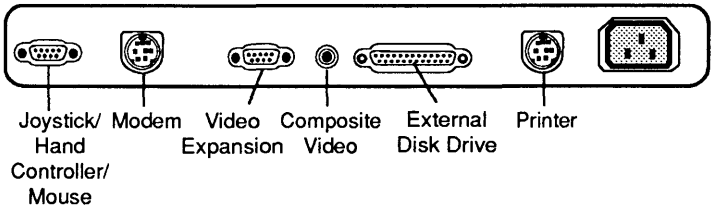
Apple II Family Computers

Computer Port Locations

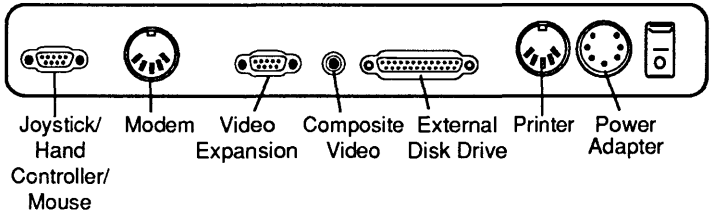
APPLE IIGS



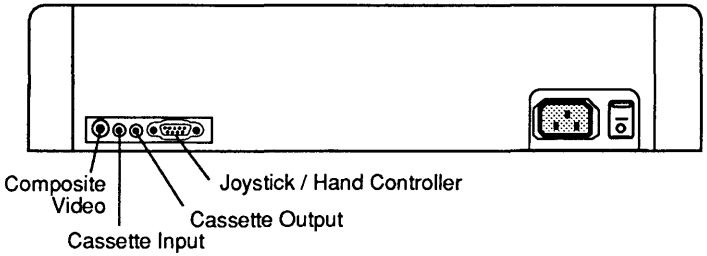
APPLE IIc Plus



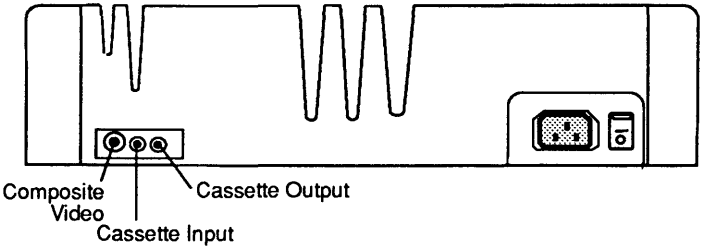
APPLE IIc



APPLE IIe



APPLE II / II+



Sound Input/Output Connector

Pin	Signal Description	Pin	Signal Description
1	A/D converter input	5	Channel address 1
2	Analog ground	6	Channel strobe/
3	Analog output	7	Channel address 2
4	Channel address 0		

Connector type: 7-pin Molex

This connector (J25) is located on the logic board, near the right-front side of the computer just below the memory expansion connector. Connector J25 is not shown in the illustration. Pin 1 is located at the front of the logic board.

Audio Connector

Pin	Signal Description
1	Signal ground
2	Earphone 1
3	Earphone 2

Connector type: Stereo miniature phono plug

Composite Video Connector

Pin	Signal Description	Pin	Signal Description
(Sleeve)	System common ground	(Tip)	NTSC composite video

Connector type: RCA phono plug

Modem and Printer Connectors

Pin	Signal Name	Signal Description
1	DTR	Data Terminal Ready
2	HSKi	Handshake in
3	TX Data -	Transmit Data -
4	GND	Signal ground
5	RX Data -	Receive Data -
6	TX Data +	Transmit Data +
7	GPI	General-Purpose Input
8	RX Data +	Receive Data +

Connector type: Mini DIN-8 male

Factory defaults:
PRINTER port (slot 1) defaults to 9600 baud, 8 data bits, no parity, 1 stop bit, unlimited line length, LF after CR, DCD and DSR/DTR handshake, no echoing, and no buffering.

MODEM port (slot 2) defaults to 1200 baud, 8 data bits, no parity, 1 stop bit, unlimited line length, no LF after CR, DCD and DSR/DTR handshake, no echoing, and no buffering.

Apple Desktop Bus Connector

Pin	Signal Name	Signal Description
1	Data	Bidirectional data bus
2	NC	Reserved
3	Power	+5 volts
4	Ground	Signal ground

Connector type: Mini DIN-4 male

Total length of cables should not exceed 16 feet (5 meters).

Disk Drive Connector

Pin	Signal Name	Signal Description
1	GND	Signal ground
2	GND	Signal ground
3	GND	Signal ground
4	3.5DISK	3.5- or 5.25-inch drive select
5	-12V	-12 volts DC
6	+5V	+5 volts DC
7	+12V	+12 volts DC
8	+12V	+12 volts DC
9	DR2	Drive 2 select
10	WRPROTECT	Write-protect input
11	Phase 0	Motor phase 0 output
12	Phase 1	Motor phase 1 output
13	Phase 2	Motor phase 2 output
14	Phase 3	Motor phase 3 output
15	WREQ	Write request
16	HDSEL	Head select
17	DR1	Drive 1 select
18	RDDATA	Read data input
19	WDATA	Write data output

Connector type: DB-19 male

The Apple 5.25 Drive, UniDisk 5.25, Disk IIc, Apple 3.5 Drive, or UniDisk 3.5 may be connected to this connector.

RGB Video Connector

Pin	Signal Name	Signal Description
1	GND	Red signal ground
2	RED	Red analog video
3	COMP	Composite sync
4	NC	No connection
5	GREEN	Green analog video
6	GND	Green signal ground
7	-5V	-5 volts DC
8	+12V	+12 volts DC
9	BLUE	Blue analog video
10	NC	No connection
11	SOUND	Analog sound (1 volt peak-to-peak)
12	NTSC/PAL	Composite video
13	GND	Blue signal ground
14	NC	No connection
15	NC	No connection
(Shield)	GND	System ground

Connector type: DA-15 male

CAUTION: The signals on this connector are not the same as those on the DA-15 of the Apple IIc, III, III Plus; Macintosh II video cards; or the EtherTalk Interface Card. DO NOT connect an Apple IIc, III or III Plus; Macintosh II video card; or EtherTalk Interface Card device or cable to the Apple IIGS.

Joystick/Hand Controller Connector

Pin	Signal Name	Signal Description
1	SW1	Switch input 1/Option key
2	+5V	+5 volts
3	GND	Signal ground
4	PDL2	Analog input 2
5	PDL0	Analog input 0
6	SW2	Switch input 2
7	SW0	Switch 0/Open Apple key
8	PDL1	Analog input 1
9	PDL3	Analog input 3

Connector type: DE-9 male

These signals are also available on a 16-pin DIP socket labeled GAME I/O (J21) inside the case. This socket has the same pinouts as the Apple II/II Plus game controller connector.

Modem and Printer Connectors – Mini DIN-5

Pin	Signal Name	Signal Description
1	DTR	Data Terminal Ready
2	TD	Transmit Data
3	GND	Signal ground
4	RD	Receive Data
5	DSR	Data Set Ready

Connector type: 5-pin male DIN

This connector is present on the Apple IIc.

Factory defaults:
PRINTER port (slot 1) defaults to 9600 baud, 8 bits, no parity, 2 stop bits, 80 characters per line, LF after CR, hardware handshake.

MODEM port (slot 2) defaults to 300 baud, 8 bits, no parity, 1 stop bit, 80 characters per line, no LF after CR. DTR is an output. DSR is an input.

Apple IIc/IIc Plus Computer Ports

Modem and Printer Connectors – Mini DIN-8

Pin	Signal Name	Signal Description
1	HSKo	Handshake out
2	HSKi	Handshake in
3	TXD-	Transmit Data -
4	GND	Signal ground
5	RXD-	Receive Data
6	TXD+	Transmit Data +
7	NC	No connection
8	RXD+	Receive Data +

Connector type: Mini DIN-8

This connector is present on the Apple IIc Plus.

Factory defaults:
PRINTER port (slot 1) defaults to 9600 baud, 8 bits, no parity, 2 stop bits, 80 characters per line, LF after CR, hardware handshake.

MODEM port (slot 2) defaults to 300 baud, 8 bits, no parity, 1 stop bit, 80 characters per line, no LF after CR. DTR is an output. DSR is an input.

To connect DE-9 cables (used with the Apple IIc) to the Mini DIN-8 port, use adapter cable 590-0553/699-0430 (smoke) or 590-0341 (beige).

Joystick/Hand Controller/Mouse Connector

Pin	Signal Name	Signal Description
1	MOUSEID/ GAMESW1	Mouse identifier; when active, disables hand controller timer Switch input 1
2	+5V	+5 volts, 100-mA maximum current drain
3	GND	System ground
4	XDIR NC	Mouse x-direction indicator No connection
5	XMOVE PDL0	Mouse x-movement interrupt Hand controller input; connected through a 150 K-ohm variable resistor to +5 volts
6	NC	No connection
7	MSW/ GAMESW0	Mouse button Switch input 0
8	YDIR PDL1	Mouse y-direction indicator See pin 5
9	YMOVE NC	Mouse y-movement interrupt No connection

Connector type: DE-9 male

The signal name and description listed first applies to a mouse. The other signal name and description applies to a hand controller or joystick.

Video Expansion Connector

Pin	Signal Name	Signal Description
1	VIDEO	Text signal from GLU
2	14M	14-MHz timing signal from the system oscillator
3	SYNC/	Display sync signal from IOU pin 39
4	SEGB	Display vertical counter bit from IOU pin 4
5	1VSOUND	One-volt sound signal from AUD pin 5
6	LDPS/	Video shift register load enable from TMG pin 12
7	WNDW/	Active area display blanking
8	+12V	+12 volts, 300-mA maximum
9	PRAS/	RAM row address strobe from TMG pin 19
10	GR	Graphics-mode enable from IOU pin 2
11	SEROUT/	Serialized character generator output from 74LS166 (UE6) pin 1
12	NTSC	Composite NTSC video signal from VID
13	GND	Signal ground
14	VIDD7	Causes half-dot shift if high
15	CREF	3.58-MHz color reference from TMG pin 3

Connector type: DA-15 male

The video expansion connector is used for connecting the Apple Flat Panel Display or RF modulator.

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIGS, III, III Plus; Macintosh II video card; or EtherTalk Interface Card. DO NOT connect an Apple IIGS, III, III Plus; Macintosh II video card; or EtherTalk Interface Card device or cable to the Apple IIc.

External Disk Drive Connector

Pin	Signal Name	Signal Description
1	GND	Ground reference
2	GND	Ground reference
3	GND	Ground reference
4	GND	Ground reference
5	-12V	-12 volts
6	+5V	+5 volts
7	+12V	+12 volts
8	+12V	+12 volts
9	EXTINT/	External interrupt
10	WRPROT	Write-protect input
11	PH0	Motor phase 0 output
12	PH1	See pin 11
13	PH2	See pin 11
14	PH3	See pin 11
15	WRREQ/	Write request
16	NC	No connection
17	DR1/	Drive 1 select
18	RDDATA	Read data input
19	WRDATA	Write data input

Connector type: DB-19 male

The Disk IIc, Apple 5.25 Drive, UniDisk 5.25, Apple 3.5 Drive, or UniDisk 3.5 may be connected to this port.

Composite Video Connector

Pin	Signal Name	Signal Description
(Tip)	VIDEO	NTSC composite video
(Sleeve)	GND	System common ground

Connector type: RCA phono plug

Audio Connector

Pin	Signal Name	Signal Description
(Tip)	AUDIO	Audio signal
(Sleeve)	GROUND	System electrical ground

Connector type: Miniature phono plug

This connector (not shown in the illustration) is on the left side of the case near the keyboard. This connector is not present on the Apple IIc Plus. Connecting to the audio connector disables the internal speaker.

Power Adapter Connector

Pin	Signal Name	Signal Description
1	NC	No connection
2	GND	Signal ground
3	GND	Signal ground
4	SGND	Shield ground
5	+15V	+15 volts DC
6	+15V	+15 volts DC
7	NC	No connection

Connector type: 7-pin male DIN

The power adapter connector connects an external power supply to the Apple IIc. The Apple IIc Plus does not require an external power supply.

Cassette Input Connector

Pin	Signal Name	Signal Description
(Tip)	DATA IN	Audio in; one volt peak-to-peak; impedance of 12K ohms
(Sleeve)	GND	System electrical ground

Connector type: Miniature phono plug

Cassette Output Connector

Pin	Signal Name	Signal Description
(Tip)	DATA OUT	Audio out; 25 mV into a 100-ohm load
(Sleeve)	GND	System electrical ground

Connector type: Miniature phono plug

Apple II/II Plus/IIe Computer Ports

Composite Video Connector

Pin	Signal Name	Signal Description
(Sleeve)	GND	System common ground
(Tip)	VIDEO	NTSC composite video

Connector type: RCA phono plug

Apple II and II Plus video level is adjustable from 0 to 1 volt by a 200-ohm potentiometer (not shown in the illustration) located on the logic board near the right rear of the computer. Apple IIe video level is not adjustable.

Auxiliary Video Connector

Pin	Signal Name	Signal Description
1	GND	System common ground
2	VIDEO	NTSC positive composite video
3	+12V	+12 volts
4	+5V	+5 volts

Connector type: Molex KK100 series

This connector (not shown in the illustration) is located inside the computer on the logic board near the right rear of the computer.

Video level is not adjustable. On the Apple II/II Plus, pin 1 is at the edge of the logic board. On the Apple IIe, pin 1 is toward the front of the logic board.

Game Controller Connector

Pin	Signal Name	Signal Description
1	+5V	+5 volts, 100-mA maximum current drain
2	PB0	Push-button input; standard 74LS series
3	PB1	See pin 2
4	PB2	See pin 2
5	C040 STROBE/	General-purpose strobe output; goes low during phase zero of a read or write cycle to any address from $C040 to $C04F
6	GC0	Game controller input; connected through a 150K-ohm variable resistor to +5V
7	GC2	See pin 6
8	GND	System electrical ground
9	NC	No connection
10	GC1	See pin 6
11	GC3	See pin 6
12	AN3	Annunciator; standard 74LS-series TTL output; must be buffered if used to drive other than TTL inputs
13	AN2	See pin 12
14	AN1	See pin 12
15	AN0	See pin 12
16	NC	No connection

Connector type: 16-pin DIP header

This connector (not shown in the illustration) is located on the logic board near the right side of the computer.

Joystick/Hand Controller Connector

Pin	Signal Name	Signal Description
1	PB1	Push-button input; standard 74LS series
2	+5V	+5 volts, 100-mA maximum current drain
3	GND	System electrical ground
4	PDL2	Hand control input; connected through a 150 K-ohm variable resistor to +5 V
5	PDL0	See pin 4
6	PB2	See pin 1
7	PB0	See pin 1
8	PDL1	See pin 4
9	PDL3	See pin 4

Connector type: DE-9 Male

This connector is present only on the Apple IIe.

Communications Card Pin-outs

Pin	Signal Name	Signal Description
2	TXD	Transmit Data
3	RXD	Receive Data
4	RTS	Request To Send (jumpered to pin 8)
6	DSR	Data Set Ready (jumpered to pin 20)
7	GND	Signal ground
8	DCD	Data Carrier Detect (jumpered to pin 4)
20	DTR	Data Terminal Ready (jumpered to pin 6)

Connector type: DB-25 male

The Communications Card should be used only with low-speed devices (300 baud or below). No handshaking is available.

Super Serial Card Pin-outs

Pin	Signal Name	Signal Description
1	FG	Frame Ground
2	TXD	Transmit Data
3	RXD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	SG	Signal Ground
8	DCD	Data Carrier Detect
9-18	NC	No connection
19	SCTS	Secondary Clear To Send
20	DTR	Data Terminal Ready
21-25	NC	No connection

Connector type: DB-25 male

When the jumper block is installed with the arrow pointing toward MODEM, the signals are as listed above. When the jumper block is pointing toward TERMINAL, the signals are the same as the signals produced when using a modem eliminator.

Super Serial Card Printer Mode – Switch SW1

	1	2	3	4	5	6	7
Baud rate							
50	ON	ON	ON	OFF			
75	ON	ON	OFF	ON			
110	ON	ON	OFF	OFF			
135	ON	OFF	ON	ON			
150	ON	OFF	ON	OFF			
300	ON	OFF	OFF	ON			
600	ON	OFF	OFF	OFF			
1200	OFF	ON	ON	ON			
1800	OFF	ON	ON	OFF			
2400	OFF	ON	OFF	ON			
3600	OFF	ON	OFF	OFF			
4800	OFF	OFF	ON	ON			
7200	OFF	OFF	ON	OFF			
9600	OFF	OFF	OFF	ON			
19200	OFF	OFF	OFF	OFF			
Mode select							
Printer					OFF	ON	
SIC P8 emulation					ON	OFF	
SIC P8A emulation					OFF	OFF	
Handshaking†							
Clear To Send (Pin 5)							ON
Secondary Clear To Send (Pin 19)							OFF

† Used with Switch 2, position 7.

Super Serial Card Printer Mode – Switch SW2

	1	2	3	4	5	6	7
Stop bits							
1	ON						
2	OFF						
Delay after CR							
32 ms.		ON					
Disabled		OFF					
Line width/video							
40 columns/video on			ON	ON			
72 columns/video off			ON	OFF			
80 columns/video off			OFF	ON			
132 columns/video off			OFF	OFF			
Auto LF on CR							
Enabled					ON		
Disabled					OFF		
Interrupts							
Enabled						ON	
Disabled						OFF	
Handshaking†							
Clear To Send (Pin 5)							OFF
Secondary Clear To Send (Pin 19)							ON

† Used with Switch 1, position 7.

Super Serial Card Communication Mode – Switch SW1

	1	2	3	4	5	6	7
Baud rate							
50	ON	ON	ON	OFF			
75	ON	ON	OFF	ON			
110	ON	ON	OFF	OFF			
135	ON	OFF	ON	ON			
150	ON	OFF	ON	OFF			
300	ON	OFF	OFF	ON			
600	ON	OFF	OFF	OFF			
1200	OFF	ON	ON	ON			
1800	OFF	ON	ON	OFF			
2400	OFF	ON	OFF	ON			
3600	OFF	ON	OFF	OFF			
4800	OFF	OFF	ON	ON			
7200	OFF	OFF	ON	OFF			
9600	OFF	OFF	OFF	ON			
19200	OFF	OFF	OFF	OFF			
Mode select							
Communication					ON	ON	
Handshaking							
Clear To Send							ON

† Used with Switch 2, position 7.

Super Serial Card Communication Mode – Switch SW2

	1	2	3	4	5	6	7
Stop bits							
1	ON						
2	OFF						
Data bits							
8		ON					
7		OFF					
Parity							
None			ON	ON			
Odd			ON	OFF			
Even			OFF	OFF			
Auto LF on CR							
Enabled					ON		
Disabled					OFF		
Interrupts							
Enabled						ON	
Disabled						OFF	
Handshaking†							
Clear To Send							OFF

† Used with Switch 1, position 7.

Serial Interface Card Pin-outs

Pin	Signal Name	Signal Description
2	RXD	Receive Data
3	TXD	Transmit Data
4	RTS	Request To Send (jumpered to pin 5)
5	CTS	Clear To Send (jumpered to pin 4)
6	DSR	Data Set Ready (jumpered to pins 8 & 20)
7	GND	Signal ground
8	DCD	Data Carrier Detect (jumpered to pins 6 & 20)
20	DTR	Data Terminal Ready (jumpered to pins 6 & 8)

Connector type: DB-25 male

Serial Interface Card Switch Settings

	1	2	3	4	5	6	7
Baud rate							
110	ON	ON	ON				
134.5	OFF	ON	ON				
300	ON	OFF	ON				
1200	OFF	OFF	ON				
2400	ON	ON	OFF				
4800	OFF	ON	OFF				
9600	ON	OFF	OFF				
19200	OFF	OFF	OFF				
Carriage return delay							
Disabled				ON			
1/4 second delay				OFF			
Line width/video							
40 columns/video on					ON	ON	
72 columns/video off					OFF	ON	
80 columns/video off					ON	OFF	
132 columns/video off					OFF	OFF	
Auto LF on CR							
Disabled							ON
Enabled							OFF

This card should be used only with low-speed devices (300 baud or below).

PROM P8A should be used with Qume-compatible printers. When using this PROM, the function of Switch 4 is different and the switch must be OFF.

Parallel Printer & Centronics Printer Interface Card Pin-outs

Pin	Signal Name	Signal Description
1	GND	System electrical ground
2	ACK	Acknowledge input
3	NC	No connection
4	F	Not used
5	NC	No connection
6	NC	No connection
7	NC	No connection
8	STROBE	Strobe output
9	NC	No connection
10	DP0	Data bit 0
11	DP1	Data bit 1
12	DP2	Data bit 2
13	DP3	Data bit 3
14	DP4	Data bit 4
15	DP5	Data bit 5
16	DP6	Data bit 6
17	DP7	Data bit 7
18	NC	No connection
19	NC	No connection
20	GND	System electrical ground

Connector type: Unterminated 20-pin flat cable

Parallel interface has the P1 (341-0005) PROM that provides a linefeed after carriage return. The jumper block is not wired.

Centronics interface has the P9 (341-0019) PROM that does not provide a linefeed after carriage return. The jumper block is prewired for negative strobe and positive acknowledge.

IEEE-488 Interface Card Pin-outs

Pin	Signal Name	Signal Description
1	DIO1	Data input/output, bit 1
2	DIO2	Data input/output, bit 2
3	DIO3	Data input/output, bit 3
4	DIO4	Data input/output, bit 4
5	EOI	End Or Identify
6	DAV	Data Valid
7	NRFD	Not Ready For Data
8	NDAC	Not Data Accepted
9	IFC	Interface Clear
10	SRQ	Service Request
11	ATN	Attention
12	SHIELD	Earth ground
13	DIO5	Data input/output, bit 5
14	DIO6	Data input/output, bit 6
15	DIO7	Data input/output, bit 7
16	DIO8	Data input/output, bit 8
17	REN	Remote Enable
18	GND	Logic ground
19	GND	Logic ground
20	GND	Logic ground
21	GND	Logic ground
22	GND	Logic ground
23	GND	Logic ground
24	GND	Logic ground

Connector Type: 24-pin Centronics-type male

Parallel Interface Card Pin-outs

Pin	Signal Name	Signal Description
1	DI0	Data in, bit 0
2	GND	Signal ground
3	DI2	Data in, bit 2
4	GND	Signal ground
5	DO0	Data out, bit 0
6	DO1	Data out, bit 1
7	NC	No connection - blocked
8	DO2	Data out, bit 2
9	NC	No connection
10	NC	No connection
11	DO5	Data out, bit 5
12	DO6	Data out, bit 6
13	DO7	Data out, bit 7
14	DI4	Data in, bit 4
15	STROBE	Strobe output
16	ACK	Acknowledge input
17	DI1	Data in, bit 1
18	DI7	Data in, bit 7
19	DI5	Data in, bit 5
20	GND	Signal ground
21	DI6	Data in, bit 6
22	DO3	Data out, bit 3
23	DO4	Data out, bit 4
24	GND	Signal ground
25	DI3	Data in, bit 3

Connector type: DB-25 male

Parallel Interface Card Switch Settings

	1	2	3	4	5	6	7
Strobe length							
1 microsecond	OFF	OFF	OFF				
3 microseconds	ON	OFF	OFF				
5 microseconds	OFF	ON	OFF				
7 microseconds	ON	ON	OFF				
9 microseconds	OFF	OFF	ON				
11 microseconds	ON	OFF	ON				
13 microseconds	OFF	ON	ON				
15 microseconds	ON	ON	ON				
Strobe polarity							
Positive				OFF			
Negative				ON			
Acknowledge polarity							
Positive					OFF		
Negative					ON		
Firmware select							
Parallel Printer (No LF)						OFF	
Centronics						ON	
Interrupts							
Disabled							OFF
Enabled							ON

Apple II Video Overlay Card Pin-outs

Pin	Signal Description
1	Signal Ground
2	Blue Video
3	Red Video
4	No connection
5	CSYNC
6	No connection
7	No connection
8	Composite Video
9	Green Video
10	Signal Ground
11	Signal Ground
12	No connection
13	-5 volts
14	No connection
15	+12 volts

Connector Type: DA-15 male

Apple II SCSI and High-Speed SCSI Card Pin-outs

Pin	Signal Name	Signal Description
1	REQ/	Request
2	MSG/	Message
3	I/O/	Input/Output
4	RST/	Reset
5	ACK/	Acknowledge
6	BSY/	Busy
7	GND	Signal ground
8	DB0/	Data Bit 0
9	GND	Signal ground
10	DB3/	Data Bit 3
11	DB5/	Data Bit 5
12	DB6/	Data Bit 6
13	DB7/	Data Bit 7
14	GND	Signal ground
15	C/D/	Control/Data
16	GND	Signal ground
17	ATN/	Attention
18	GND	Signal ground
19	SEL/	Select
20	DBP/	Data Parity
21	DB1/	Data Bit 1
22	DB2/	Data Bit 2
23	DB4/	Data Bit 4
24	GND	Signal ground
25	NC	No connection

Connector type: DB-25 male

Not compatible with the Apple II or Apple II Plus.

CAUTION: This interface uses the same type of connector as a standard RS-232 serial interface, but it is electrically very different. DO NOT connect any RS-232 device or cable to this connector. Doing so can damage both the device and the computer.

Graphics Tablet Interface Pin-outs – Pen

Pin	Signal Name	Signal Description
1	NC	No connection
2	GND	System electrical ground
3	PEN	Pen coil
4	PEN	Pen coil

Connector Type: DE-9 male

Graphics Tablet Interface Pin-outs – Tablet

Pin	Signal Name	Signal Description
1	YDRIVE	Y-axis input
2	XDRIVE	X-axis input
3	NC	No connection
4	RESET	Reset signal
5	GND	System electrical ground
6	-12V	-12 volts DC

Connector Type: DE-9 male

Apple II, II Plus, and IIe Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ † Apple Personal Modem Data Modem 2400	590-0331 or 590-0555	A2C0311 or A2C0312	Beige Smoke
ImageWriter & IW 15-Inch Scribe Daisy Wheel Printer Color Plotter AppleLine Cluster Controller	590-0037	A2C0352* A2C0355* A2C0351* A2C0302* NA NA	Light gray
Modem 300/1200	590-0121	A2C0354*	Beige
Dot Matrix Printer with Parallel Interface Card	590-0042	NA	Varies
Dot Matrix Printer with Centronics Printer Card §	590-0036	NA	Varies

† The ImageWriter LQ must be set for 9600 baud when used with an Apple II, II Plus, or IIe. Set DIP switch 2, positions 1 and 2, to ON.

§ Set Dot Matrix Printer switch 1 position 8 to ON to provide a line feed on receipt of a carriage return.

Apple IIc Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ † Apple Personal Modem § Data Modem 2400 &	590-0333 or 590-0554	A2C4312 or A2C4313	Beige Smoke
ImageWriter & IW 15-Inch Scribe Daisy Wheel Printer AppleLine Color Plotter ‡	590-0191	A2C4515* A2C4520* NA A2C4510*	Beige
Modem 300/1200 *	590-0192	A2C4505*	Beige

† The ImageWriter LQ must be set for 9600 baud when used with an Apple IIc. Set DIP switch 2, positions 1 and 2, to ON.

§ Change the baud rate of the modem port on the computer to 1200 baud.

& Change the baud rate of the modem port on the computer to 2400 baud.

‡ Change the baud rate of the printer port on the computer to 1200 baud.

* If a modem 1200 is being used, change the baud rate of the modem port of the computer to 1200 baud.

Apple IIGS and IIc Plus Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ † Apple Personal Modem Data Modem 2400 §	590-0552 or 590-0340	M0197 M0187	Smoke Beige
ImageWriter & IW 15-Inch Scribe Daisy Wheel Printer Color Plotter & Cluster Controller	590-0037 and 590-0550	A2C0352* A2C0355* A2C0351* A2C0302* NA	Light gray Smoke
Modem 300/1200 ‡	590-0121 and 590-0550	A2C0354* A9M0333	Beige Smoke
Dot Matrix Printer with Parallel Interface Card (Apple IIgs only)	590-0042	NA	Varies
Dot Matrix Printer with Centronics Printer Card (Apple IIgs only)*	590-0036	NA	Varies

† The ImageWriter LQ must be set for 9600 baud when used with an Apple IIgs or IIc Plus. Set DIP switch 2, positions 1 and 2, to ON.

§ Change the baud rate of the modem port on the computer to 2400 baud.

& Set the baud rate of the Color Plotter and printer port on the computer to 1200 baud.

‡ If a Modem 300 is being used, change the baud rate of the modem port of the computer to 300 baud.

* Set Dot Matrix Printer switch 1 position 8 to ON to provide a line feed on receipt of a carriage return.

Apple III & Lisa/Mac XL Computers

Table of Contents

Introduction

This section contains the specifications for all the built-in interfaces and interface card connectors for the Apple III/III Plus and Lisa/Macintosh XL families of computers. Built-in interfaces and interface cards for the Apple III/III Plus are covered first, followed by the Lisa/Macintosh XL. Illustrations at the beginning of the section show the locations of the built-in interface connectors.

Notes:

A slash (/) after the signal name indicates that the signal is valid when the signal is low.

The connector specified is for the cable end, not the computer port.

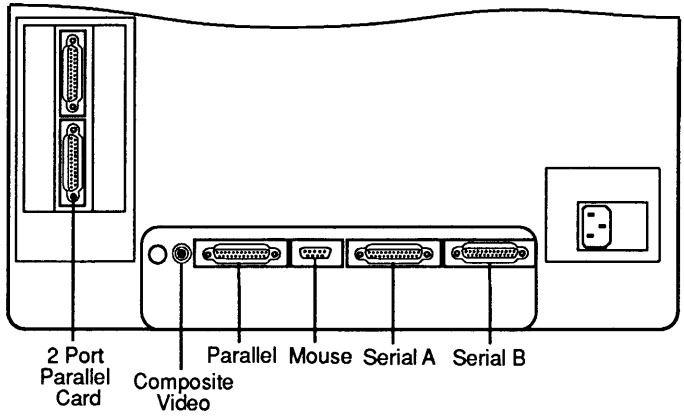
In the peripheral connections tables, accessory kit part numbers followed by an asterisk (*) include items in addition to the cable (software and/or manuals, for example).

Accessory kit part numbers followed by a dagger (†) include a modem eliminator cable (590-0166).

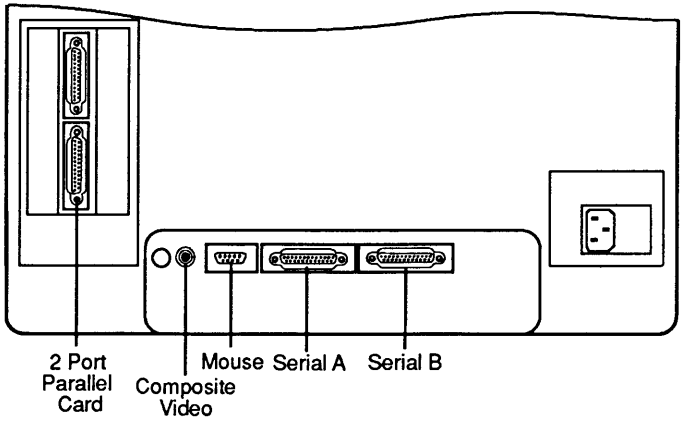
Apple III & Lisa/Mac XL Computers

Computer Port Locations

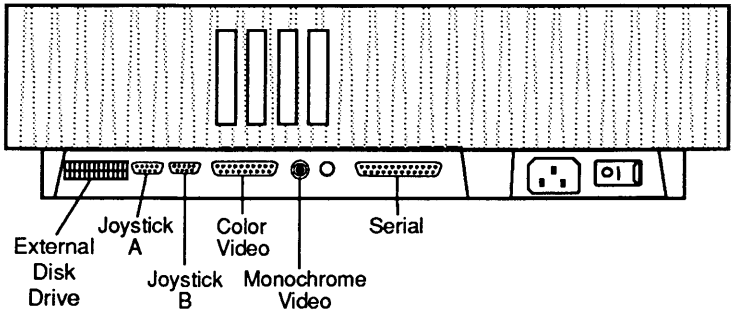
LISA 2 AND LISA 2/5



LISA 2/10 AND MACINTOSH XL



APPLE III and III Plus



Audio Connector

Pin	Signal Name	Signal Description
(Tip)	AUDIO	.5-volt peak-to-peak audio signal
(Sleeve)	GND	Signal ground

Connector type: Miniature phono plug

The internal speaker is disabled when this connector is in use.

Monochrome Video Connector

Pin	Signal Name	Signal Description
(Tip)	BWVID	Monochrome video signal
(Sleeve)	GND	Signal ground

Connector type: RCA phono plug

Serial Connector

Pin	Signal Name	Signal Description
1	SGND	Shield ground
2	TXD	Transmit Data
3	RCD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	GND	Signal ground
8	DCD	Data Carrier Detect
9-19	NC	No connection
20	DTR	Data Terminal Ready
21-25	NC	No connection

Connector type: DB-25 male

External Disk Drive Connector

Pin	Signal Name	Signal Description
1	SGND	Shield ground
2	DPH0	Motor phase 0
3	GND	Signal ground
4	DPH1	Motor phase 1
5	GND	Signal ground
6	DPH2	Motor phase 2
7	GND	Signal ground
8	DPH3	Motor phase 3
9	-12F	-12 volts
10	WRREQ	Write request
11	+5F	+5 volts
12	+5F	+5 volts
13	+12F	+12 volts
14	ENBL1E/	Drive select 1
15	+12F	+12 volts
16	RDDATA	Read data
17	+12F	+12 volts
18	WRDATA	Write data
19	+12F	+12 volts
20	WRPROT	Write protect
21	ENBL3E/	Drive select 3
22	ENBL2E/	Drive select 2
23	AII/	Apple II emulation mode active
24	SIDE2/1	Side select
25	NC	No connection
26	EXT/	External drive

Connector type: 26-pin 2-row x 13-pin female IDC

Color Video Connector

Pin	Signal Name	Signal Description
1	SG	Shield ground
2	XRGB4	TTL output with instantaneous color information; linear-weighted sum of these four signals will form a true 16-color RGB video signal
3	SYNCH	Composite sync signal (negative-going)
4	PDI	Not used
5	XRGB1	See pin 2
6	GND	Power and signal ground
7	-5V	-5 volts, 200-mA maximum current drain
8	+12V	+12 volts, 500-mA maximum current drain
9	XRGB2	See pin 2
10	XRGB8	See pin 2
11	BWVID	Black-and-white composite video; NTSC-compatible signal with negative-going sync; 1 volt peak-to-peak into a 75-ohm load
12	NTSC	Color composite video; NTSC-compatible signal with negative-going sync; 1 volt peak-to-peak into a 75-ohm load
13	GND	Power and signal ground
14	-12V	-12 volts, 200-mA maximum current drain
15	+5V	+5 volts, 1 amp maximum current drain

Connector type: DA-15 male

This port supports the connection of any NTSC-compatible color or monochrome monitor. Additional circuitry is required to support an RGB monitor. Current ratings are with no peripheral cards installed.

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, Macintosh II video cards, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, Macintosh II video cards, or EtherTalk Interface Card device or cable to the Apple III or III Plus.

Joystick A Connector

Pin	Signal Name	Signal Description
1	GND	Shield ground
2	+5V	+5 volts
3	GND	Power and signal ground
4	JS1-X	Horizontal analog input, read by PDL(2); in Emulation mode, equivalent to Apple II Paddle 0 (GC0) input, read by PDL(0)
5	JS1-B	Joystick switch input, read by button (2); in Emulation mode, equivalent to Apple II Paddle 0 button (PB1) input, read by PEEK(-16287)
6	+12V	+12 volts
7	GND	Power and signal ground
8	JS1-Y	Vertical analog input, read by PDL(3); in Emulation mode, equivalent to Apple II Paddle 2 (GC2) input, read by PDL(2)
9	JS1-SW	Joystick switch input, read by button (3); in Emulation mode, equivalent to Apple II Paddle 2 button (PB3) input, read by PEEK(-16285)

Connector type: DE-9 male

This port also supports the connection of a Silentype III printer.

Circuitry is provided for two analog devices (potentiometers) and two digital devices (switches). The analog inputs accept input voltage in the range of 0 to 2.2 volts and can sink 3 mA. The digital inputs are TTL.

Joystick B Connector

Pin	Signal Name	Signal Description
1	GND	Shield ground
2	+5V	+5 volts
3	GND	Power and signal ground
4	JS0-X	Horizontal analog input, read by PDL(0); in Emulation mode, equivalent to Apple II Paddle 1 (GC1) input, read by PDL(1)
5	JS0-B	Joystick switch input, read by Button (0); in Emulation mode, equivalent to Apple II Paddle 1 button (PB2) input, read by PEEK(-16286)
6	+12V	+12 volts
7	GND	Power and signal ground
8	JS0-Y	Vertical analog input, read by PDL(1); in Emulation mode, equivalent to Apple II Paddle 3 (GC3) input, read by PDL(3)
9	JS0-SW	Joystick switch input, read by Button (1); not used in Emulation mode

Connector type: DE-9 male

Circuitry is provided for two analog devices (potentiometers) and two digital devices (switches). The analog inputs accept input voltage in the range of 0 to 2.2 volts and can sink 3 mA. The digital inputs are TTL.

Universal Parallel Interface Card Pin-outs (Pins 1-20)

Pin	Signal Name	Signal Description
1	DO0	Port B, Data Output, bit 0
2	DO1	Port B, Data Output, bit 1
3	DO2	Port B, Data Output, bit 2
4	DO3	Port B, Data Output, bit 3
5	DO4	Port B, Data Output, bit 4
6	DO5	Port B, Data Output, bit 5
7	DO6	Port B, Data Output, bit 6
8	DO7	Port B, Data Output, bit 7
9	NC	No connection
10	NC	No connection
11	GND	Signal ground
12	ACK	Acknowledge input
13	DI0	Port B, Data Input, bit 0
14	DI1	Port B, Data Input, bit 1
15	DI2	Port B, Data Input, bit 2
16	DI3	Port B, Data Input, bit 3
17	DI4	Port B, Data Input, bit 4
18	STROBE	Strobe output
19	DI5	Port B, Data Input, bit 5
20	DO0	Port A, Data Output, bit 0

Universal Parallel Interface Card Pin-outs (Pins 21-40)

Pin	Signal Name	Signal Description
21	DO1	Port A, Data Output, bit 1
22	DO2	Port A, Data Output, bit 2
23	DO3	Port A, Data Output, bit 3
24	DO4	Port A, Data Output, bit 4
25	DO5	Port A, Data Output, bit 5
26	DO6	Port A, Data Output, bit 6
27	DO7	Port A, Data Output, bit 7
28	DI6	Port B, Data Input, bit 6
29	DI7	Port B, Data Input, bit 7
30	GND	Signal ground
31	NC	No connection
32	NC	No connection
33	DRO	Data Ready Output
34	GND	Signal ground
35	GND	Signal ground
36	GND	Signal ground
37	GND	Signal ground
38	ACK	Acknowledge
39	GND	Signal ground
40	GND	Signal ground

Connector Type: 40-pin 2-row x 20-pin female IDC

Pins 11-30 are used to support a parallel printer.

Serial Card III Pin-outs

Pin	Signal Name	Signal Description
1	SGND	Shield ground
2	TXD	Transmit Data
3	RXD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	GND	Signal ground
8	DCD	Data Carrier Detect
9-19	NC	No connection
20	DTR	Data Terminal Ready
21-25	NC	No connection

Connector type: DB-25 male

The signals are as listed above when the modem eliminator button is pushed IN. When the modem eliminator button is OUT, the Serial Card III signals are the same as the signals produced by a modem eliminator cable.

Apple III and III Plus Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ † Apple Personal Modem Data Modem 2400	590-0331 or 590-0555	A2C0311 or A2C0312	Beige Smoke
ImageWriter & IW 15-Inch Scribe Daisy Wheel Printer AppleLine Color Plotter §	590-0037 and 590-0166	A3C0352*+ NA A3C0351*+ A2C0302*+ A3C0302*+	Light gray Gray
Cluster Controller	590-0037	NA	Light gray
Modem 300/1200	590-0121	A3C0354*	Beige
Dot Matrix Printer with Universal Parallel Interface Card &	590-0036	NA	Varies

† The ImageWriter LQ must be set for 9600 baud when used with an Apple III/III Plus. Set DIP switch 2, positions 1 and 2, to ON.

§ The Color Plotter must be set for seven data bits and odd parity for use with an Apple III/III Plus. Set switch 1 to ON and switch 2 to OFF.

& Set the auto line feed switch on the UPIC to AUTO.

Lisa/Macintosh XL Computer Ports

Serial A Connector

Pin	Signal Name	Signal Description
1	FG	Frame Ground
2	TXD	Transmit Data
3	RXD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	GND	Signal Ground
8	DCD	Data Carrier Detect
15	TXC	Transmit clock input
17	RXC	Receive clock input
20	DTR	Data Terminal Ready
24	TEXT	Transmit clock output

Connector type: DB-25 male

Serial B Connector

Pin	Signal Name	Signal Description
1	GND FG	Frame Ground Frame Ground
2	TXD- TXD	Transmit Data - Transmit Data
3	RXD- RXD	Receive Data - Receive Data
4	NC RTS	No connection Request To Send
5	NC	No connection
6	HSK/DSR DSR	Handshake/Data Set Ready Data Set Ready
7	GND	Signal ground
19	RXD+ RD	Receive Data + AppleTalk Receive Data
20	TXD+/DTR DTR	Transmit Data + Data Terminal Ready

Connector type: DB-25 male

The first set of signal names and descriptions listed applies to RS-422. The second set applies to RS-232.

Lisa/Macintosh XL Computer Ports

Mouse Connector

Pin	Signal Name	Signal Description
1	Switch 1	Mouse switch
2	+5V	+5 volts DC
3	GND	System electrical ground
4	Left	Mouse movement - left
5	Right	Mouse movement - right
6	Switch 2	Connected to CHK on parallel port
7	Button	Not used
8	Down	Mouse movement - down
9	Up	Mouse movement - up

Connector type: DE-9 male

Composite Video Connector

Pin	Signal Name	Signal Description
(Tip)	VIDEO	Composite video output
(Sleeve)	GND	System electrical ground

Connector type: RCA phono plug

Lisa/Macintosh XL Computer Ports

Parallel Connector

Pin	Signal Name	Signal Description
1	GND	System electrical ground
2	GND	System electrical ground
3	DRW/	Data direction
4	GND	System electrical ground
5	DD0	Data bit 0 (bidirectional)
6	DD1	Data bit 1 (bidirectional)
7	N/C	No connection - blocked
8	DD2	Data bit 2 (bidirectional)
9	GND	System electrical ground
10	GND	System electrical ground
11	DD5	Data bit 5 (bidirectional)
12	DD6	Data bit 6 (bidirectional)
13	DD7	Data bit 7 (bidirectional)
14	GND	System electrical ground
15	PSTRB/	Strobe (output)
16	BSY	Busy (input)
17	CMD/	Command
18	PARITY/	Parity (bidirectional)
19	OCD	Device on-line status
20	GND	System electrical ground
21	CRES/	Reset (output)
22	DD3	Data bit 3 (bidirectional)
23	DD4	Data bit 4 (bidirectional)
24	GND	System electrical ground
25	CHK	Interrupt (input)

Connector type: DB-25 male

This interface is found only on the Lisa 2.0/2.5.

Two-Port Parallel Card Pin-outs

Pin	Signal Name	Signal Description
1	GND	System electrical ground
2	GND	System electrical ground
3	DRW/	Data direction
4	GND	System electrical ground
5	DD0	Data bit 0 (bidirectional)
6	DD1	Data bit 1 (bidirectional)
7	NC	No connection - blocked
8	DD2	Data bit 2 (bidirectional)
9	GND	System electrical ground
10	GND	System electrical ground
11	DD5	Data bit 5 (bidirectional)
12	DD6	Data bit 6 (bidirectional)
13	DD7	Data bit 7 (bidirectional)
14	GND	System electrical ground
15	PSTRB/	Strobe (output)
16	BSY	Busy (input)
17	CMD/	Command
18	PARITY/	Parity (bidirectional)
19	OCD	Device on-line status
20	GND	System electrical ground
21	CRES/	Reset (output)
22	DD3	Data bit 3 (bidirectional)
23	DD4	Data bit 4 (bidirectional)
24	GND	System electrical ground
25	CHK	Interrupt (input)

Connector type: DB-25 male

Lisa and Macintosh XL Peripheral Connections

	Service/Engineering Part Number	Model #	Cable Color
ImageWriter II, II/L ImageWriter LQ† Apple Personal Modem Data Modem 2400	590-0331 or 590-0555	A2C0311 or A2C0312	Beige Smoke
ImageWriter & IW 15-Inch Scribe Daisy Wheel Printer AppleLine	590-0037 and 590-0166	A6C0352*+ A6C0355*+ A6C0351*+ NA	Light gray Gray
Cluster Controller	590-0037	NA	Light gray
Modem 300/1200	590-0121	A6C0354*	Beige
Dot Matrix Printer	590-0042	NA	Varies

Serial port A is the preffered port for connecting all serial devices, except AppleLine. AppleLine should be connected to serial port B.

† The ImageWriter LQ must be set for 9600 baud when used with a Lisa/Macintosh XL. Set DIP switch 2, positions 1 and 2, to ON.

Peripherals

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Peripherals

Introduction

This section contains interface specifications for Apple peripheral devices. The factory switch settings of each device are shown in bold type.

Notes:
This section refers to switches as either "ON" (closed) or "OFF" (open).

Switches marked "XX" are unused and can be set either ON or OFF.

A slash (/) after the signal name indicates that the signal is valid when the signal is low.

The connector specified is for the cable end, not the computer port.

Personal LaserWriter NT, LaserWriter II NT and NTX Pin-outs – RS-422

Pin	Signal Name	Signal Description
1	HSKo	Handshake out
2	HSKi	Handshake in
3	TxD-	Transmit Data -
4	SG	Signal Ground
5	RxD-	Receive Data -
6	TxD+	Transmit Data +
7	GPi	General-Purpose input
8	RxD+	Receive Data +

Connector type: Mini DIN-8 male

Personal LaserWriter NT, LaserWriter II NT and NTX Pin-outs – RS-232

Pin	Signal Name	Signal Description
1	SGND	Signal ground
2	TxD	Transmitted Data
3	RxD	Received Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	SG	Signal Ground
8	DCD	Data Carrier Detect
20	DTR	Data Terminal Ready
22	RI	Ring Indicator

Connector type: DB-25 male

LaserWriter II NTX – Switch 1

	1	2	3	4	5	6
Communication mode						
LocalTalk†	**OFF**	**OFF**				
1200 baud RS-232 & RS-422	ON	OFF				
9600 baud RS-232 & RS-422	OFF	ON				
9600 baud RS-232	ON	ON				
Command mode						
PostScript batch			**OFF**	**OFF**		
Diablo 630			ON	OFF		
PostScript interactive			OFF	ON		
HP LaserJet			ON	ON		
Handshaking						
X-On/X-Off					**OFF**	**OFF**
X-On/X-Off					ON	ON
ETX/ACK					ON	OFF
Data Set Ready					OFF	ON

† If LocalTalk is selected, switches 3 through 6 are not used.

LaserWriter II NT – Switch 1

	1	2
Communication and command mode		
LocalTalk	**OFF**	**OFF**
Diablo 630 emulation	ON	OFF
9600 Baud RS-232 & RS-422	OFF	ON
1200 Baud RS-232 & RS-422	ON	ON

Personal LaserWriter NT – Thumbwheel Switch

Switch Position	Connector	Meaning
0	8-pin 25-pin	AppleTalk, PostScript batch mode Serial, no input
1	8-pin 25-pin	Serial (9600, N, std, 1, XON), Postscript batch mode Serial (9600, N, std, 1, XON), Postscript batch mode
2	8-pin 25-pin	Serial (9600, N, 1, XON), HP emulation Serial (9600, N, 1, XON), HP emulation
3	8-pin 25-pin	Serial (9600, N, 1, XON), Diablo emulation Serial (9600, N, 1, XON), Diablo emulation
4†	8-pin 25-pin	Serial 1200, N, std, 1, XON, PostScript batch mode Serial 1200, N, std, 1, XON, PostScript batch mode
5	8-pin 25-pin	Serial (9600, N), 8, (1, None), Postscript batch mode Serial (9600, N), 8, (1, DTR), Postscript batch mode
6	8-pin 25-pin	Serial (9600, N), 8, (1, XON), Postscript binary mode Serial (9600, N), 8, (1, XON), Postscript binary mode
7	8-pin 25-pin	AppleTalk, PostScript batch Serial, no input

For switch positions 1 through 6, the parameters are listed in the following order: data transfer rate, parity check, number of data bits, stop bits, handshake, and mode. The parentheses indicate that the parameter can be changed via software.

† When the switch is set to position 4 and the printer is turned on, a diagnostic page will be printed instead of the normal startup page.

LaserWriter II SC and Personal LaserWriter SC Pin-outs

Pin	Signal Name	Signal Description
1-12	GND	Signal ground
13	NC	No connection
14-25	GND	Signal ground
26	DB0/	Data Bit 0
27	DB1/	Data Bit 1
28	DB2/	Data Bit 2
29	DB3/	Data Bit 3
30	DB4/	Data Bit 4
31	DB5/	Data Bit 5
32	DB6/	Data Bit 6
33	DB7/	Data Bit 7
34	DBP/	Data Parity
35-37	GND	Signal ground
38	+5V	+5 volts
39	GND	Signal ground
40	GND	Signal ground
41	ATN/	Attention
42	GND	Signal ground
43	BSY/	Busy
44	ACK/	Acknowledge
45	RST/	Reset
46	MSG/	Message
47	SEL/	Select
48	C/D/	Control/Data
49	REQ/	Request
50	I/O/	Input/Output

Connector type: BR-50 male

LaserWriter and LaserWriter Plus Pin-outs – AppleTalk

Pin	Signal Name	Signal Description
3	SG	Signal Ground
4	TXD+	Transmit Data +
5	TXD-	Transmit Data -
8	RXD+	Receive Data +
9	RXD-	Receive Data -

Connector type: DB-9 male

Mode switch set to "AppleTalk" selects this port.

LaserWriter and LaserWriter Plus Pin-outs – RS-232

Pin	Signal Name	Signal Description
2	TD	Transmit Data
3	RD	Receive Data
4	RTS	Request To Send
7	SG	Signal Ground
20	DTR	Data Terminal Ready

Connector type: DB-25 male

Mode switch set to "1200" or "9600" selects this port.

ImageWriter II and II/L Pin-outs

Pin	Signal Name	Signal Description
1	DTR	Data Terminal Ready (output)
2	DSR	Data Set Ready (input)
3	TXD-	Transmit Data (output)
4	SG	Signal Ground
5	RXD-	Receive Data (input)
6	TXD+	Balanced transmit + (output)
7	NC	No connection
8	RXD+	Balanced receive + (input)
(Shield)	PG	Protective Ground

Connector type: Mini DIN-8 male

ImageWriter II and II/L – Switch 1

	1	2	3	4	5	6	7	8
Character set								
American	**OFF**	**OFF**	**OFF**					
Italian	ON	OFF	OFF					
Danish	OFF	ON	OFF					
British	ON	ON	OFF					
German	OFF	OFF	ON					
Swedish	ON	OFF	ON					
French	OFF	ON	ON					
Spanish	ON	ON	ON					
Form length								
11 inches				**OFF**				
12 inches				ON				
Perforation skip								
Disabled					**OFF**			
Enabled					ON			
Characters per inch								
10						OFF	OFF	
12						**ON**	**OFF**	
17						OFF	ON	
Proportional						ON	ON	
Auto LF on CR								
Disabled								**OFF**
Enabled								ON

ImageWriter II and II/L – Switch 2

	1	2	3	4	5	6
Baud rate						
300	OFF	OFF				
1200	ON	OFF				
2400	OFF	ON				
9600	**ON**	**ON**				
Handshaking						
Hardware (DTR)			**OFF**			
X-On/X-Off			ON			
Option card						
Not installed				**OFF**		
Installed				ON		
Hammer firing†						
Factory set					xx	xx
Factory set					xx	xx

† Note: These switches modify adjustments critical to print quality. DO NOT change their settings unless you refer to the *ImageWriter LQ Technical Procedures* for additional information.

ImageWriter LQ Pin-outs

Pin	Signal Name	Signal Description
1	DTR DSR	Data Terminal Ready (output) Data Set Ready
2	DSR DTR	Data Set Ready (input) Data Terminal Ready
3	TXD- RxD	Transmit Data - (output) Received Data
4	SG GND	Signal ground Signal ground
5	RXD- TxD	Receive Data - (input) Transmitted Data
6	TXD+ NC	Transmit Data + (output) No connection
7	NC	No connection
8	RXD+ GND	Receive Data + (input) Signal Ground
(Shield)	PG Shield	Protective ground

Connector type: Mini DIN-8 male

The first set of signal names and descriptions listed applies to RS-422. The second set applies to RS-232.

ImageWriter LQ – Switch 1

	1	2	3	4	5	6	7	8
Character set								
American	**OFF**	**OFF**	**OFF**					
Italian	ON	OFF	OFF					
Danish	OFF	ON	OFF					
British	ON	ON	OFF					
German	OFF	OFF	ON					
Swedish	ON	OFF	ON					
French	OFF	ON	ON					
Spanish	ON	ON	ON					
Form length								
11 inches				**OFF**				
12 inches				ON				
Perforation skip								
Disabled					**OFF**			
Enabled					ON			
Characters/dots per inch								
10 cpi						OFF	OFF	
12 cpi						**ON**	**OFF**	
17 cpi						OFF	ON	
160 dpi						ON	ON	
216 dpi						ON	ON	
Auto LF on CR								
Disabled								**OFF**
Enabled								ON

ImageWriter LQ – Switch 2

	1	2	3	4	5	6	7	8
Baud rate								
1200	ON	OFF						
2400	OFF	ON						
9600	ON	ON						
19200	**OFF**	**OFF**						
Handshaking								
Hardware (DTR)			**OFF**					
X-On/X-Off			ON					
Option card								
Not installed				**OFF**				
Installed				ON				
Cut-sheet feeder bins attached								
1					OFF	OFF	ON	
1 and 2					ON	OFF	ON	
1, 2, and 3					OFF	ON	ON	
1 and envelope					**OFF**	**OFF**	**OFF**	
1, 2, and envelope					ON	OFF	OFF	
1, 2, 3, and envelope					ON	ON	OFF	
Auto paper load position								
To print line								**OFF**
To paper bail								ON

ImageWriter LQ – Switch 3†

	1	2	3	4	5	6	7	8
Not used	XX							
Not used		XX						
Color ribbon home position								
Shift ribbon down								
.78125 mm			ON	ON	OFF			
.46875 mm			OFF	ON	OFF			
.15625 mm			ON	OFF	OFF			
Shift ribbon up								
.78125 mm			ON	ON	ON			
.46875 mm			OFF	ON	ON			
.15625 mm			ON	OFF	ON			
Horizontal registration								
Left movement								
+0.159 mm						ON	ON	OFF
+0.106 mm						OFF	ON	OFF
+0.053 mm						ON	OFF	OFF
+0.000 mm						OFF	OFF	OFF
Right movement								
-0.044 mm						ON	ON	OFF
-0.088 mm						OFF	ON	OFF
-0.132 mm						ON	OFF	OFF
-0.176 mm						OFF	OFF	OFF

† Note: These switches modify adjustments critical to print quality. DO NOT change their settings unless you refer to the *ImageWriter LQ Technical Procedures* for additional information.

ImageWriter and ImageWriter 15-Inch Pin-outs

Pin	Signal Name	Signal Description
1	FG	Frame Ground
2	SD	Send Data (output)
3	RD	Receive Data (input)
4	RTS	Request To Send (output)
7	SG	Signal Ground
14	FAULT/	Fault
20	DTR	Data Terminal Ready (output)

Connector type: DB-25 male

ImageWriter and ImageWriter 15-Inch – Switch 2

	1	2	3	4
Baud rate				
300	OFF	OFF		
1200	ON	OFF		
2400	OFF	ON		
9600	**ON**	**ON**		
Handshaking				
DTR			**OFF**	
X-On/X-Off			ON	
Not used				XX

ImageWriter and ImageWriter 15-Inch – Switch 1

	1	2	3	4	5	6	7	8
Character set								
American	**OFF**	**OFF**	**OFF**					
British	ON	ON	OFF					
German	OFF	OFF	ON					
French	OFF	ON	ON					
Swedish	ON	OFF	ON					
Italian	ON	OFF	OFF					
Spanish	ON	ON	ON					
Page length								
66 Lines				**OFF**				
72 Lines				ON				
Eighth data bit								
Recognize					**OFF**			
Ignore					ON			
Character pitch								
Pica						OFF	OFF	
Elite						**ON**	**OFF**	
Ultra Condensed						OFF	ON	
Elite Proportional						ON	ON	
Auto LF on CR								
Disabled								**OFF**
Enabled								ON

Daisy Wheel Printer – Pin-outs

Pin	Signal Description	Pin	Signal Description
1	Protective ground	7	Signal ground
2	Transmit data	8	Carrier detect
3	Receive data	9-19	No connection
4	Request to send	20	Data terminal ready
5	Clear to send	21-25	No connection
6	Data set ready		

Connector type: DB-25 male

Daisy Wheel Printer – Inside Front Panel Switch

	1	2	3	4	5	6	7	8
Type pitch								
10 CPI	OFF	OFF						
12 CPI	**ON**	**OFF**						
15 CPI	OFF	ON						
Proportional	ON	ON						
Form length								
3 inches			OFF	OFF	OFF	OFF		
3.5 inches			ON	OFF	OFF	OFF		
4 inches			OFF	ON	OFF	OFF		
5 inches			OFF	OFF	ON	ON		
5.5 inches			ON	ON	OFF	OFF		
6 inches			OFF	OFF	ON	OFF		
7 inches			ON	OFF	ON	OFF		
8 inches			OFF	ON	ON	OFF		
8.5 inches			ON	ON	ON	OFF		
9 inches			ON	OFF	ON	ON		
10 inches			OFF	ON	ON	ON		
11 inches			**OFF**	**OFF**	**OFF**	**ON**		
11.66 inches			ON	OFF	OFF	ON		
12 inches			OFF	ON	OFF	ON		
14 inches			ON	ON	OFF	ON		
16 inches			ON	ON	ON	ON		
Auto LF on CR								
Disabled							**OFF**	
Enabled							ON	
Lines per inch								
6								**OFF**
8								ON

Daisy Wheel Printer – Rear Panel Switch 1

	1	2	3	4	5	6	7	8
Baud rate								
110	OFF	OFF	OFF					
150	ON	OFF	OFF					
300	OFF	ON	OFF					
600	ON	ON	OFF					
1200	**OFF**	**OFF**	**ON**					
2400	ON	OFF	ON					
4800	OFF	ON	ON					
9600	ON	ON	ON					
Handshaking								
ETX/ACK & DTR				**OFF**	**OFF**			
X-On/X-Off				ON	OFF			
DTR				OFF	ON			
Modem								
No modem						**ON**		
Modem						OFF		
Parity								
Space							**ON**	**ON**
Mark							OFF	ON
Even							ON	OFF
Odd							OFF	OFF

Daisy Wheel Printer – Rear Panel Switch 2

	1	2	3	4	5	6	7	8
Character set								
ASCII Standard	**OFF**	**OFF**	**OFF**	**OFF**				
USA WP	ON	OFF	OFF	OFF				
Italian	OFF	ON	OFF	OFF				
Swedish	ON	ON	OFF	OFF				
English (UK)	OFF	OFF	ON	OFF				
French	ON	OFF	ON	OFF				
German	OFF	ON	ON	OFF				
Spanish	ON	ON	ON	OFF				
Print direction								
Bidirectional					**ON**			
Unidirectional					OFF			
Auto LF on CR								
Disabled						**OFF**		
Enabled						ON		
Duplex								
Full							**OFF**	
Half							ON	
Paper-out condition								
Stop printing								**ON**
Continue printing								OFF

Scribe Pin-outs

Pin	Signal Name	Signal Description
1	FG	Frame Ground
2	SD	Send Data
3	RD	Receive Data
4	RTS	Request To Send
7	SG	Signal Ground
20	DTR	Data Terminal Ready

Connector type: DB-25 male

Scribe – Switch 1

	1	2	3	4	5	6	7	8
Character set								
American	**OFF**	**OFF**	**OFF**					
Italian	ON	OFF	OFF					
American	OFF	ON	OFF					
British	ON	ON	OFF					
German	OFF	OFF	ON					
Swedish	ON	OFF	ON					
French	OFF	ON	ON					
Spanish	ON	ON	ON					
Auto LF on CR								
Disabled				**OFF**				
Enabled				ON				
Print intensity								
Darkest					OFF	OFF		
Dark					OFF	ON		
Light					ON	OFF		
Lightest					**ON**	**ON**		
Baud rate								
9600							**OFF**	
1200							ON	
Handshaking								
DTR								**OFF**
X-On/X-Off								ON

Dot Matrix Printer Pin-outs

Pin	Signal Name	Signal Description
1	DATA STB/	Data strobe
2	DATA1	Data bit 1
3	DATA2	Data bit 2
4	DATA3	Data bit 3
5	DATA4	Data bit 4
6	DATA5	Data bit 5
7	DATA6	Data bit 6
8	DATA7	Data bit 7
9	DATA8	Data bit 8
10	ACK/	Acknowledge
11	INPUT-BUSY	Busy input
12	PE	Paper empty
13	SELECT	On/off-line status
14	OV	Ground
15	NC	No connection
16	OV	Ground
17	CGND	Chassis ground
18	+5V	+5 volts DC
19-29	GND	Twisted pair ground (pins 1-11)
30	GND	Twisted pair ground (pin 31)
31	INPUT-PRIME/	Reset input to printer
32	FAULT/	Error condition
33	OV	Ground
34	NC	No connection
35	NC	No connection
36	INPUT-BUSY	Busy input

Connector Type: TRW CINCH 57-30360 or equivalent

Dot Matrix Printer – Switch 1

	1	2	3	4	5	6	7	8
Character set								
English (US)	**OFF**	**OFF**	**OFF**					
Italian	ON	OFF	OFF					
English (UK)	ON	ON	OFF					
German	OFF	OFF	ON					
Swedish	ON	OFF	ON					
French	OFF	ON	ON					
Spanish	ON	ON	ON					
Lines per page								
66 Lines				**OFF**				
72 Lines				ON				
Remote select								
Disabled					**ON**			
Enabled					OFF			
CR/LF on buffer full								
Enabled						**ON**		
Disabled						OFF		
Print upon receipt of								
CR, LF, VT, US, or FF							**ON**	
CR							OFF	
Auto LF on CR								
Disabled								**OFF**
Enabled								ON

Dot Matrix Printer – Switch 2

	1	2	3	4	5	6	7	8
Zero								
Unslashed	**OFF**							
Slashed	ON							
Buffer								
Single-line		**ON**						
N-line		OFF						
Not used			xx					
Not used				xx				
Printing								
10 CPI (Pica)					**OFF**			
Proportional (Elite)					ON			
Word length								
7-Bit						**ON**		
8-Bit						OFF		
Power-on status								
Selected							**ON**	
Deselected							OFF	
Printing direction								
Bidirectional								**OFF**
Unidirectional								ON

Color Plotter Pin-outs

Pin	Signal Name	Signal Description
1	FG	Frame ground
3	Rx	Receive Data (input)
4	+12VDC	+12 volts DC
7	SG	Signal Ground
20	DTR	Data Terminal Ready (output)

Connector type: DB-25 male

Color Plotter – Switch 1

	1	2	3	4	5	6	7	8
Data length								
7 bit	**ON**							
8 bit	OFF							
Parity								
Parity on		OFF						
Parity off		**ON**						
Odd			ON					
Even			OFF					
Stop bits								
1 bit				OFF	ON			
1.5 bits				ON	OFF			
2 bits				OFF	OFF			
Baud rate								
75						ON	ON	ON
150						ON	ON	OFF
300						ON	OFF	ON
600						ON	OFF	OFF
1200						**OFF**	**ON**	**ON**
2400						OFF	ON	OFF
4800						OFF	OFF	ON
9600						OFF	OFF	OFF

Apple Personal Modem Pin-outs

Pin	Signal Name	Signal Description
1	DSR	Data Set Ready (output)
2	DTR	Data Terminal Ready (input)
3	RXD	Receive Data (output)
4	SG	Signal Ground
5	TXD	Transmit Data (input)
6	SG	Signal Ground
7	DCD	Data Carrier Detect (output)
8	NC	No connection

Connector type: Mini DIN-8 male

AppleFax Modem and Apple Data Modem 2400 Pin-outs

Pin	Signal Name	Signal Description
1	HSKo	Handshake (output)
2	HSKi	Handshake (input)
3	TxD-	Transmit data - (output)
4	SG	Signal Ground
5	RxD-	Receive data - (input)
6	TxD+	Transmit data + (output)
7	GPi	Carrier Detect (output)
8	RxD+	Receive data + (input)

Connector type: Mini DIN-8 male

Modem 300/1200 Pin-outs

Pin	Signal Name	Signal Description
2	DSR	Data Set Ready
3	SGND	Signal Ground
5	RCD	Receive Data
6	DTR	Data Terminal Ready
7	DCD	Data Carrier Detect
8	GND	Chassis ground
9	TXD	Transmit Data

Connector type: DB-9 male

Modem 300 – Switches

	1	2	3
Carrier detect			
Always high	**ON**		
Normal	OFF		
Not used		XX	
Data terminal ready			
Computer supplies			**OFF**
Modem supplies			ON

Modem 1200 – Switches

	1	2	3
Carrier detect			
Always high	**ON**		
Normal	OFF		
PBX/CBX			
Meets Bell standard		**OFF**	
Doesn't meet Bell standard		ON	
Data terminal ready			
Computer supplies			**OFF**
Modem supplies			ON

AppleLine Pin-outs

Pin	Signal Name	Signal Description
1	SGND	Shield ground
2	TXD	Transmit Data (output)
3	RXD	Receive Data (input)
4	RTS	Request To Send (output)
5	CTS	Clear To Send (input)
6	DSR	Data Set Ready (input)
7	GND	Signal ground
8	DCD	Data Carrier Detect (input)
12	CH	Data signal rate selector (input)
20	DTR	Data Terminal Ready (output)
22	CE	Ring Indicator (input)

Connector type: DB-25 female

Cluster Controller Pin-outs – Asychronous Direct Port

Pin	Signal Name	Signal Description
1	GND	Ground
2	TX	Transmit Data (input)
3	RX	Receive Data (output)
4	RTS	Request To Send (input)
5	CTS	Clear To Send (output)
6	DSR	Data Set Ready (output)
7	GND	Ground
8	DCD	Data Carrier Detect (output)
20	DTR	Data Terminal Ready (input)

Connector type: DB-25 male

Cluster Controller Pin-outs – Modem Port

Pin	Signal Name	Signal Description
1	GND	Ground
2	Tx	Transmit Data (output)
3	Rx	Receive Data (input)
4	RTS	Request To Send (output)
5	CTS	Clear To Send (input)
6	DSR	Data Set Ready (input)
7	GND	Ground
8	DCD	Data Carrier Detect (input)
20	DTR	Data Terminal Ready (output)

Connector type: DB-25 male

AppleColor High-Resolution RGB Monitor Pin-outs

Pin	Signal Description
1	Red video ground
2	Red video
3	Composite TTL sync
4	Composite sync ground
5	Green video
6	Green video ground
7	Not used
8	Not used
9	Blue video
10	Not used
11	Not used
12	Not used
13	Blue video ground
14	Not used
15	Not used
Shell	Shield ground

Connector type: DA-15 male

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to the monitor.

Apple High-Resolution Monochrome Monitor Pin-outs

Pin	Signal Description
1	Not used
2	Not used
3	Composite TTL sync
4	Composite sync ground
5	Black and white video
6	Video ground
7	Not used
8	Not used
9	Not used
10	Not used
11	Not used
12	Not used
13	Not used
14	Not used
15	Not used
Shell	Shield ground

Connector type: DA-15 male

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to the monitor.

Macintosh Portrait Display and Two-Page Monochrome Monitor Pin-outs

Pin	Signal Description
A1	Monochrome video
A2	75-ohm
A3	75-ohm
1	Horizontal sync return
2	Vertical sync
3	Sense #3
4	Sense ground
5	Composite sync (not used)
6	Horizontal sync
7	Vertical sync return
8	Sense #2
9	Sense #1
10	Composite sync return (not used)
Shell	Shell Ground

Connector type: 13-pin, mixed-contact, D-type

AppleColor RGB and Color Monitor 100 Pin-outs

Pin	Signal Description
1	Red video ground
2	Red composite video
3	Composite sync
4	Not used
5	Green composite video
6	Green video ground
7	Not used
8	Not used
9	Blue composite video
10	Not used
11	Not used
12	Not used
13	Blue video ground
14	Not used
15	Not used
Shell	Shield ground

Connector type: DA-15 male

CAUTION: The signals on this connector are not the same as on the DA-15 of the Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card. DO NOT connect an Apple IIc, IIGS, III, III Plus, or EtherTalk Interface Card device or cable to the monitor.

Apple Scanner, CD SC, HD SC, & Tape Backup 40 SC Pin-outs

Pin	Signal Name	Signal Description
1-12	GND	Signal Ground
13	NC	No connection
14-25	GND	Signal Ground
26	DB0/	Data Bit 0
27	DB1/	Data Bit 1
28	DB2/	Data Bit 2
29	DB3/	Data Bit 3
30	DB4/	Data Bit 4
31	DB5/	Data Bit 5
32	DB6/	Data Bit 6
33	DB7/	Data Bit 7
34	DBP/	Data Parity
35-37	GND	Signal Ground
38	+5V	+5 volts
39	GND	Signal Ground
40	GND	Signal Ground
41	ATN/	Attention
42	GND	Signal Ground
43	BSY/	Busy
44	ACK/	Acknowledge
45	RST/	Reset
46	MSG/	Message
47	SEL/	Select
48	C/D/	Control/Data
49	REQ/	Request
50	I/O/	Input/Output

Connector type: BR-50 male

Apple MIDI Interface Pin-outs

Pin	Signal Description
MIDI IN	
1	No connection
2	Shield ground
3	No connection
4	Interface enable
5	Data in
MIDI OUT	
1	No connection
2	Shield ground
3	No connection
4	+5 volts
5	Data out

Connector type: DIN-5 male

Cables

Table of Contents

Cables

Introduction

This section contains information about pin connections, colors, and connector types for Apple peripheral cables. A diagram at the end of the section shows the pin numbering of each connector.

Cables

Serial Cables

590-0029

DB-25 Male	DB-25 Female
1	1
2	3
3	2
4 and 5	8
6	20
7	7
8	4 and 5
20	6

Color: light gray

This is a modem eliminator cable, used to connect the Apple III, III Plus, or Lisa/Macintosh XL to serial ports on devices other than modems.

This cable has been replaced by 590-0166.

590-0037

DB-25 Male	DB-25 Male
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
20	20

Color: light gray

Used to connect the following devices:

using a Super Serial Card: Apple II, II Plus, IIe, or IIGS to an AppleLine, Color Plotter, ImageWriter/ImageWriter 15-inch, Scribe, Daisy Wheel Printer, or Cluster Controller.

Apple IIGS or IIc Plus to an ImageWriter/ImageWriter 15-inch, Scribe, Daisy Wheel Printer, Color Plotter, or Cluster Controller. Also requires cable 590-0550.

Apple III, III Plus, or Lisa/Macintosh XL to an ImageWriter/ImageWriter 15-inch, Scribe, Daisy Wheel Printer, AppleLine, or Color Plotter. Also requires cable 590-0166.

Apple III, III Plus, or Lisa/Macintosh XL to a Cluster Controller.

Cables

Serial Cables

590-0121

DB-25 Male	DE-9 Male
1	8
2	9
3	5
5 and 8	7
6	2
7	3
20	6

Color: beige

Used to connect the following devices:

Using a Super Serial Card: Apple II, II Plus, IIe, or IIGS to a Modem 300 or Modem 1200.

Apple IIGS or IIc Plus to a Modem 300 or Modem 1200. Also requires cable 590-0550.

Apple III or III Plus to a Modem 300 or Modem 1200.

Lisa/Macintosh XL to a Modem 300 or Modem 1200.

590-0166

DB-25 Male	DB-25 Female
1	1
2	3
3	2
4 and 5	8
6	20
7	7
8	4 and 5
20	6

Color: gray

This is a modem eliminator cable, used to connect the Apple III, III Plus, or Lisa/Macintosh XL to serial ports on devices other than modems.

This cable replaces 590-0029.

Cables

Serial Cables

590-0169

DE-9 Male	DB-25 Male
1	1
3 and 8	7
5	3
7	20
9	2

Color: medium brown

Used to connect the following devices:

Apple IIGS or IIc Plus to a Scribe, ImageWriter/ImageWriter 15-Inch, or Color Plotter. Also requires cable 590-0341.

Macintosh 128K, 512K, or 512K enhanced to an AppleLine, ImageWriter/ImageWriter 15-Inch, or Cluster Controller.

Macintosh Plus or later Macintosh to an ImageWriter/ImageWriter 15-Inch, AppleLine, or Cluster Controller. Also requires cable 590-0341 or 590-0553/699-0430.

590-0191

DIN-5 Male	DB-25 Male
1	6
2	3
3	7
4	2
5	20

Color: beige

Used to connect the following devices:

Apple IIc to a Daisy Wheel Printer, Scribe, ImageWriter/ImageWriter 15-Inch, Color Plotter, or AppleLine.

590-0192

DIN-5 Male	DE-9 Male
1	6
2	9
3	3
4	5
5	2
Shield	8

Color: beige

Used to connect the following devices:

Apple IIc to a Modem 300 or Modem 1200.

590-0197

DE-9 Male	DE-9 Male
3 and 8	3 and 8
5	9
6	6
7	7
9	5

Color: medium brown

Used to connect the following devices:

Macintosh 128K, 512K, or 512K enhanced to a Modem 300 or Modem 1200.

Macintosh Plus or later Macintosh to a Modem 300 or 1200. Also requires cable 590-0341 or 590-0553.

590-0551 and 590-0332

Mini DIN-8 Male	DE-9 Male
1 and 7	7
2	6
3	9
4	1
5	5
6	8
8	4

Color:
590-0551—smoke
590-0332—beige

Used to connect the following devices:

Macintosh 128K, 512K, 512K enhanced to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

590-0550

Mini DIN-8 Male	DB-25 Female
1	6
2	20
3	3
4 and 8	7
5	2
7	4 and 5
Shield	Shield

Color: smoke

Apple IIGS and IIc Plus Peripheral Adapter Cable. Used to connect DB-25 cables to the Mini DIN-8 ports.

Cables

Serial Cables

590-0552 and 590-0340

Mini DIN-8 Male	Mini DIN-8 Male
1	2
2	1
3	5
4	4
5	3
6	8
7	7
8	6

Color:
590-0552—smoke
590-0340—beige

Used to connect the following devices:

Apple IIGS or IIc Plus to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

Macintosh Plus or later Macintosh to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, Apple Data Modem 2400, or AppleFax modem.

590-0553, 699-0430, and 590-0341

Mini DIN-8 Male	Mini DE-9 Female
1	6
2	7
3	5
4	3 and 1
5	9
6	4
8	8

Color:
590-0553 and 699-0430—smoke
590-0341—beige

This adapter cable is used to connect DE-9 cables to devices with Mini DIN-8 ports.

590-0554 and 590-0333

DIN-5 Male	Mini DIN-8 Male
1	2
2	5
3	4 and 8
4	3

Color:
590-0554—smoke
590-0333—beige

Used to connect the following devices:

Apple IIc to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

590-0555 and 590-0331

Mini DIN-8 Male	DB-25 Male
1	6 and 8
2	20
3	3
4 and 8	7
5	2

Color:
590-0555—smoke
590-0331—beige

Used to connect the following devices:

Using a Super Serial Card: Apple II, II Plus, IIe, or IIGS to an Apple Data Modem 2400, Apple Personal Modem, ImageWriter II/IIL, or ImageWriter LQ.

Apple III or III Plus to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

Lisa/Macintosh XL to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

590-0556 and 590-0335

DB-25 Male	Mini DIN-8 Male
2	3
3	5
6 and 8	2
7	4 and 8
20	1

Color:
590-0556—smoke
590-0335—beige

Used to connect the following devices:

Using a Super Serial Card: Apple II, II Plus, IIe, or IIGS to an ImageWriter II/IIL, ImageWriter LQ, Apple Personal Modem, or Apple Data Modem 2400.

Cables

Parallel Cables

590-0036

20-pin IDC	TRW Cinch 57-30360 Male
1	14
2	10
3	33
4	32
5	31
6	17
7	11
8	1
9	12
10	2
11	3
12	4
13	5
14	6
15	7
16	8
17	9
18	13
19	18
20	16

Color: varies

Used to connect the following devices:

Using the Centronics Printer Card: Apple II, II Plus, IIe, or IIGS to a Dot Matrix Printer.

Using the Universal Parallel Interface Card: Apple III or III Plus to a Dot Matrix Printer.

590-0042

DB-25 Male	AMP-36 Male
2	19
5	2
6	3
8	4
11	7
12	8
13	9
14	11
15	1
16	10
18	35
19	12
21	13
22	5
23	6
24	16
25	32

Color: light gray

Used to connect the following devices:

Using the Parallel Interface Card: Apple II, II Plus, IIe, or IIGS to a Dot Matrix Printer.

Lisa/Macintosh XL using the internal parallel interface (Lisa 2.0 or 2/5 only) or the 2-Port Parallel Card to a Dot Matrix Printer.

Cables

Video Cables

590-0562

13-pin, mixed-contact D-connector	13-pin, mixed-contact D-connector
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
A3 (center)	A3 (center)
A3 (outer)	A3 (outer)
A2 (center)	A2 (center)
A2 (outer)	A2 (outer)
A1 (center)	A1 (center)
A1 (outer)	A1 (outer)
Shell	Shell

Color: smoke

Used to connect the following devices:

Macintosh II Portrait Display or Two-Page Monochrome Monitor video cards (obsolete versions) to Portrait Display Monitor or Two-Page Monochrome Monitor.

590-0615

DB-15 Male	13-pin, mixed-contact D-connector
1	14
2	12
3	10
4, 7, and 10	11
5	3
6	15
8	7
9	4
A3 (center)	9
A3 (outer)	13
A2 (center)	5
A2 (outer)	6
A1 (center)	2
A1 (outer)	1
Shell	Shell

Color: smoke

Used to connect the following devices:

Macintosh IIci, IIsi, or LC to a Portrait Display.

Macintosh II Portrait Display or Two-Page Monochrome Monitor video cards (current versions) to Portrait Display Monitor or Two-Page Monochrome Monitor.

Cables

SCSI Cables

658-8031 and 590-0345

DB-25 Male	BR-50 Male
1	49
2	46
3	50
4	45
5	44
6	43
7	16, 18, and 19
8	26
9	20, 21, and 22
10	29
11	31
12	32
13	33
14	1, 2, and 3
15	48
16	4, 5, and 6
17	41
18	7, 8, 9, and 11
19	47

568-8031 and 590-0345 (Pins 20-25)

DB-25 Male	BR-50 Male
20	34
21	27
22	28
23	30
24	23, 24, and 25
25	38

Color:
658-8031—smoke
590-0345—beige

Used to connect Apple II or Macintosh computers having a SCSI interface to SCSI peripherals.

Compatible computers:
- Apple IIe or IIGS with an Apple II SCSI Interface Card or High Speed SCSI Interface Card
- All Macintosh computers except the 128K, 512K, and 512K enhanced

Compatible peripherals:
- Hard Disk SC
- Tape Backup 40SC
- AppleCD SC
- LaserWriter II SC
- Personal LaserWriter SC
- Apple Scanner

Cables

SCSI Cables

658-8033 and 590-0347

This cable is wired straight through (1 to 1, 2 to 2, 3 to 3, etc.).

Pins 10, 12-15, 17, 35-37, 39, 40, and 42 are not connected.

Color
658-8033—smoke
590-0347—beige

Used to extend the length of SCSI cables (male to female).

658-8034 and 590-0346

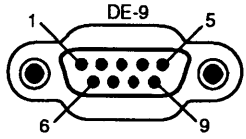
This cable is wired straight through (1 to 1, 2 to 2, 3 to 3, etc.).

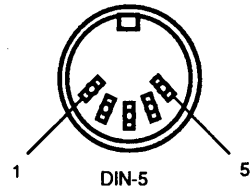
Pins 10, 12-15, 17, 35-37, 39, 40, and 42 are not connected.

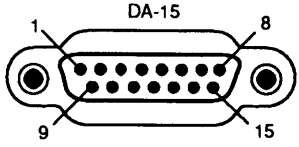
Color:
658-8034—smoke
590-0346—beige

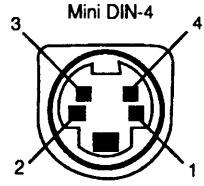
Used to daisy-chain SCSI devices (male to male).

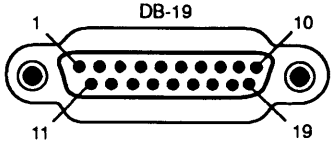
Connector Specifications

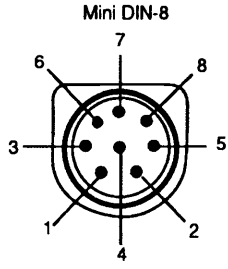


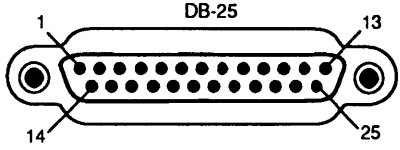


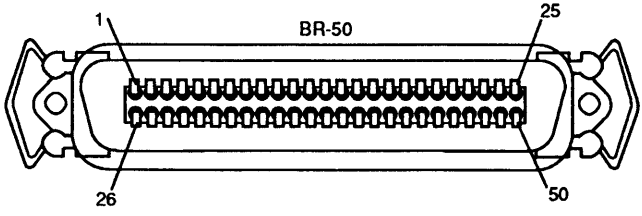












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