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Duo Dock/Duo Dock II: External Pinouts (3/95)

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TOPIC ----------

This article gives the pin assignments and functions for the connectors on the Duo Dock and Duo Dock II.

DISCUSSION ----------

Main Expansion Connector (Processor-Direct Slot)

A 152-pin main expansion connector, JAE part number JX20-152BA-D1LTH, provides the interface between the PowerBook Duo computer, and the Duo Dock. It mounts directly to the Duo Dock's main logic board, and plugs into the matching connector on the PowerBook Duo rear panel, giving the Duo Dock direct access to the microprocessor's 32-bit address bus, 32-bit data bus, and control signals. It also provides access to power, control, and status signals in other parts of the computer, and allows the Duo Dock to provide power to the PowerBook Duo.

The table below lists the subset of signals used for the Duo Dock interface. A slash before a signal name (/AS) indicates an active-low signal.

Pin number	Signal name	Description
1, 2, 77, 78, 79	PR +24V EXT	Raw +24 V from AC adapter
3	/PLUG IN	Power surge control (grounded in the expansion device)
4, 19, 20, 30, 38, 39, 51, 61, 65, 66, 80, 81, 115, 141, 142	GND	Logic ground

7	/ON/OFF OUT	On/off button
9	/STERM	Synchronous termination
10	/DS	Data strobe
11	/AS	Address strobe
12, 29, 42,	+5V MAIN OUT	+5 V regulated power
13	/HALT	Halt
14	/BERR	Bus error
15	/BGACK	Bus grant acknowledge
21	ADDR[0]	Address bit 0
22	ADDR[2]	Address bit 2
23	ADDR[4]	Address bit 4
24	ADDR[6]	Address bit 6
25	ADDR[8]	Address bit 8
26	ADDR[10]	Address bit 10
27	ADDR[12]	Address bit 12
28	ADDR[14]	Address bit 14
31	ADDR[18]	Address bit 18
32	ADDR[20]	Address bit 20
33	ADDR[22]	Address bit 22
34	ADDR[24]	Address bit 24
35	ADDR[26]	Address bit 26
36	ADDR[28]	Address bit 28
37	ADDR[30]	Address bit 30
40	IOCLK	15.6672 MHz I/O clock
41	SIZ[1]	Transfer size bit 1
43	DATA[0]	Data bit 0

44	DATA[1]	Data bit 1
45	DATA[2]	Data bit 2
46	DATA[3]	Data bit 3
47	DATA[4]	Data bit 4
48	DATA[5]	Data bit 5
49	DATA[6]	Data bit 6
50	DATA[7]	Data bit 7
52	DATA[17]	Data bit 17
53	DATA[18]	Data bit 18
54	DATA[19]	Data bit 19
56	DATA[20]	Data bit 20
57	DATA[21]	Data bit 21
58	DATA[22]	Data bit 22
59	DATA[23]	Data bit 23
62	/SCC IRQ	SCC interrupt request
63	SERVEE	-5 V for SCC transceivers
67	+8V SOUND	Special "clean" +8 V power for sound output
68	+5V MODEM	+5 V power for modem
69	LINET/R	Modem DAA line talk/receive
70	+5V SOUND	+5 V power for sound output
72	SND OUT L	Sound output left channel
73	EXT MIC FILT R	Right input signal from external microphone
74	EXT MIC FILT L	Left input signal from external microphone
75, 76, 151, 152	DAA GND	Modem ground
83	ADB DATA	Apple Desktop Bus data

84	/ADBPWRON	ADB power-on key
86	/CBREQ	Cache burst request
87	/DSACK1	Data size acknowledge bit 1
88	/DSACK0	Data size acknowledge bit 0
89	/BR	Bus request
90	/BG	Bus grant
91	/SLEEP	Sleep-state signal
92	FC[1]	Function code bit 1
93	FC[0]	Function code bit 0
94	/RMC	Read-modify-write cycle
95	CPUCLK	CPU bus clock
96	/CPURESET	CPU reset (bus invalid)
97	ADDR[1]	Address bit 1
98	ADDR[3]	Address bit 3
99	ADDR[5]	Address bit 5
100	ADDR[7]	Address bit 7
101	ADDR[9]	Address bit 9
102	ADDR[11]	Address bit 11
103	ADDR[13]	Address bit 13
104	ADDR[15]	Address bit 15
105	ADDR[16]	Address bit 16
106	ADDR[17]	Address bit 17
107	ADDR[19]	Address bit 19
108	ADDR[21]	Address bit 21
109	ADDR[23]	Address bit 23
110	ADDR[25]	Address bit 25

111	ADDR[27]	Address bit 27
112	ADDR[29]	Address bit 29
113	ADDR[31]	Address bit 31
114	/SLOT IN	Expansion device plugged in grounds pin
116	RD	Read/Write
117	SIZ[0]	Transfer size bit 0
118	DATA[8]	Data bit 8
119	DATA[9]	Data bit 9
120	DATA[10]	Data bit 10
121	DATA[11]	Data bit 11
122	+5VEXTSENSE	+5 V external sense
123	DATA[12]	Data bit 12
124	DATA[13]	Data bit 13
125	DATA[14]	Data bit 14
126	DATA[15]	Data bit 15
127	DATA[16]	Data bit 16
128	DATA[24]	Data bit 24
129	DATA[25]	Data bit 25
130	DATA[26]	Data bit 26
131	DATA[27]	Data bit 27
132	DATA[28]	Data bit 28
133	DATA[29]	Data bit 29
134	DATA[30]	Data bit 30
135	DATA[31]	Data bit 31
137	/SWIM CS	SWIM chip select
138	/SLOT E IRQ	Pseudo-NuBus expansion slot E interrupt

139	/PFW	Power fail warning (shutdown bit)
140	/IO RESET	Reset output to I/O systems
143	DAA CNTLF	Modem DAA control
144	DAA ID IN	ID input from 152-pin connector to modem card
145	/RING DET	Ring detect signal from the modem DAA
146	/RB DVR	Modem relay B driver
147	/RA DVR	Modem relay A driver
148	EXT MIC SEL	External microphone plugged in

Video Port

The video connection is made through a standard DB-15 connector.

Pin number	Signal name	Description
1	RED GND	Red ground
2	RED VID	Red video signal
3	/CSYNC	Composite sync
4	SENSE0	Monitor sense bit 0
5	GRN VID	Green video signal
6	GRN GND	Green ground
7	SENSE1	Monitor sense bit 1
8	mc	No connection
9	BLU VID	Blue video signal
10	SENSE2	Monitor sense bit 2
11	C&VSYNC GND	Ground for CSYNC and VSYNC
12	/VSYNC	Vertical sync
13	BLU GND	Blue ground
14	HSYNC GND	HSYNC ground

15	HSYNC	Horizontal sync

HDI-30 SCSI Connector

Pin number	Signal name	Description
1	nc	Reserved for SCSI disk mode.
2	/DB0	Bit 0 of SCSI data bus
3, 8, 10, 12, 13, 15, 17, 20, 22, 24	GND	Ground
4	/DB1	Bit 1 of SCSI data bus
5	TPWR	Termination power
6	/DB2	Bit 2 of SCSI data bus
7	/DB3	Bit 3 of SCSI data bus
9	/ACKS	Handshake signal. When low acknowledges a request for data transfer
11	/DB4	Bit 4 of SCSI data bus
14	/DB5	Bit 5 of SCSI data bus
16	/DB6	Bit 6 of SCSI data bus
18	/DB7	Bit 7 of SCSI data bus
19	/DBP	SCSI data bus parity bit
21	/REQ	Request for a data transfer
23	/BSY	When active (low) indicates that the SCSI data bus is busy
25	/ATN	When active (low) indicates an attention condition
26	/C/D	When active (low) indicates that data is on the SCSI bus. When high, indicates that control signals are on the bus
27	/RST	SCSI bus reset
28	/MSG	Indicates the message phase

29	/SEL	SCSI select
30	/I/O	Controls the direction of data output. When high, data is input

Modem and Printer Ports

Pin number	Signal name	Description
1	HSKo	Handshake output. Connected to the Request to Send (RTS) pin on the Combo chip. Tristated when the Data Terminal Ready (DTR) signal is inactive.
2	HSKi	Handshake input. Connected to the Transmit Receive Clock(TRXC) pin on the Combo chip.
3	/TXD	Transmit data (inverted). Connected to the Transmit Data (TXD) pin on the Combo chip. Tristated when DTR is inactive.
4	SG	Signal ground. Connected to logic and chassis ground.
5	/RXD	Receive data (inverted). Connected to the Receive Data (RXD) pin on the Combo chip.
6	TXD	Transmit data. Connected to the Transmit Data (TXD) pin on the Combo chip. Tristated when DTR is inactive.
7	GPi	General purpose input. Connected to the Data Carrier Detect (DCD) pin on the Combo chip.
8	RXD+	Receive data. Connected to the Receive Data (RXD) pin on the Combo chip.
10, 11, 12	GND	These pins are connected to chassis ground.

Apple Desktop Bus Interface

Pin number	Signal name	Description

1	ADB	Bidirectional data bus for input and output
2	POWER ON	Key on ADB keyboard (if connected) grounds this pin to pin 4, enabling power to be turned on from the keyboard
3	+5V	+5 V power
4	GND	Logic ground
5, 6, 7	GND	Chassis ground

Sound Ports

Two monaural mini phone jacks provide connections for sound input and output.

Modem Adapter Card (optional)

When the PowerBook Duo computer is housed in the Duo Dock, you cannot access the integral modem via the RJ-11 connector on the PowerBook Duo's rear panel. A modem adapter card provides the connection. It plugs into the side of the Duo Dock's main logic board, using a 10-pin header connector. The card supplies the RJ-11 hook up, which is accessed on the rear panel of the Duo Dock. The adapter card interfaces with the modem card in the PowerBook Duo computer via its 10-pin connector, printed circuit traces, and the 152-pin expansion connector. The table below lists the signal assignments for the connector.

Modem Adapter Connector Signal Assignments

Pin number	Signal name	Description
1	LINET/R	Line/talk receive
2, 3, 4	DAA GND	Modem DAA ground
5	/RA DVR	Modem relay A driver
6	DAA ID IN	ID input
7	/RING3 DET	Ring detect signal
8	/RBDVR	Modem relay B driver
9	DAA CNTL	Modem DAA control
10	+5 V MODEM	+5 V power

Built-In Ethernet Connector (Duo Dock II only)

Pin	Signal Name	Signal Description
1	FN Pwr	Power (+12V @ 2.1W or +5V @ 1.9W)
2	DI-A	Data In circuit A
3	DI-B	Data In circuit B
4	VCC	Voltage Common
5	CI-A	Control In circuit A
6	CI-B	Control In circuit B
7	+5V	+5 volts (from host)
8	+5V	Secondary +5 volts (from host)
9	DO-A	Data Out circuit A
10	DO-B	Data Out circuit B
11	VCC	Secondary Voltage Common
12	NC	Reserved
13	NC	Reserved
14	FN Pwr	Secondary +12V @ 2.1W or +5V @ 1.9W
Shell	Protective Gnd	Protective Ground

AAUI signals have the same description, function, and electrical requirements as the AUI signals of the same name, as detailed in IEEE Standard 802.3-1990 CSMA/CD, section 7.

Article Change History:
22 Mar 1995 - Corrected wording of Duo Dock.
24 Jun 1994 - Added Duo Dock II information, revised formatting.

Support Information Services

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