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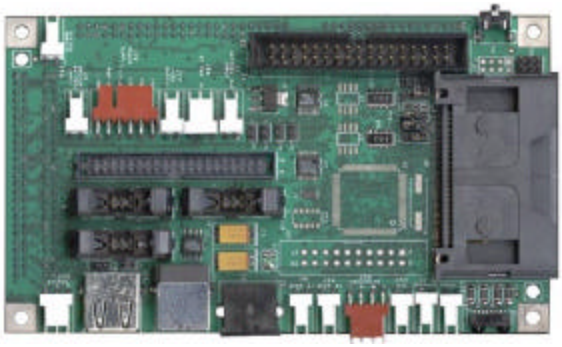
Bitsy Connector Board

User's Manual

ADS document # 110111-80011-5



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Revision History

ADS document # 110111-80011-5.

REV	DESCRIPTION	DATE	BY
1	Initial release	06/21/01	HW
1-1	Add description for J4 Battery Input Correct description of J7 Battery Power Input Indicate that battery charging is not functional in this revision of the product (J27, JP30, JP32) Add note about relationship of J12 to J16 Update signal descriptions of J14, J16, J17	10/14/01	CM
1-2 to 1-5	Add Chapter 2: Overview (options, functional cross-reference, mechanicals) Correct J20 Serial 1 description Add Bitsy signal names and source references to connector descriptions Correct J13.34 description to read "n/c" Correct reversal of J19.5 and J19.6 Identify *ROW4* as part of charger circuit Use consistent formatting of tables and sections headings Correct J6, J34 stereo speaker descriptions (proposed) Replace labeled picture in at beginning of Hardware Reference with individual indicators of connector locations (proposed)	10/16/01	AK

About the Cover Photo

The cover photo shows a Rev. 1 Bitsy Connector board populated with the Compact Flash option.

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Table of Contents

1 Introduction

The Bitsy Connector Board is a reference design for use with the ADS Bitsy single board computer. This manual describes use of the Connector Board and its relationship to the Bitsy.

1.1 Organization of this Manual

The manual organizes information in three key sections:

Introduction	Introduces the Bitsy Connector Board and describes how to use this manual
Overview	Provides an overview of the functionality and organization of the Bitsy Connector board.
Hardware Reference	Describes the configuration settings and connector pinouts for all systems of the Bitsy Connector board.

To locate the information you need, try the following:

1. Locate items of interest in the *Functional Cross-Reference* (section 2.3).
2. Browse the *Table of Contents*. Section titles include connector designators and their function.
3. Follow cross-references between sections.
4. View and search this manual in PDF format

1.2 For Further Information...

ADS maintains a web site exclusively for its developers. The site includes downloads, troubleshooting guides, operating system updates and the "ADS Knowledge Base", a comprehensive document with scores of questions answered about developing applications for ADS products. Instructions on how to access the site are shipped with every evaluation system.

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2 Overview

The Bitsy Connector Board is a reference design for use with the ADS Bitsy single board computer. The Connector Board breaks out many of the Bitsy's features to individual connectors. It also demonstrates how to expand the Bitsy's functionality with features such as infrared, USB hub, compact flash and Ethernet.

This chapter provides an overview of the organization and functionality of the Bitsy Connector Board. It includes a feature list, production options, a functional cross-reference guide and mechanical drawings.

Detailed schematics and mechanical drawings for the Bitsy Connector Board are also available from the ADS web site.

2.1 Features

Features of the Bitsy Connector Board include:

- RS-232 and Infrared transceiver for Bitsy Serial 2
- Compact Flash socket or 10/100BT Ethernet controller
- Individual connectors for Bitsy features
- Charger for NiMH, NiCd or Li ion cells (future)
- USB hub power control

2.2 Options

The Bitsy Connector Board has two board population options. One includes a Compact Flash connector and associated circuitry. The other is a 10/100 Ethernet controller. Due to space constraints, only one option can be populated on the board at a time.

2.2.1 Compact Flash

The Compact Flash option includes CF socket J28 and associated power and pull-up circuitry for standard CF operation.

2.2.2 10/100BT Ethernet

The Ethernet option adds an SMSC LAN91C111 10/100BT Ethernet controller, MAC address EEPROM, RJ-45 socket, status LEDs and associated interface circuitry.

2.3 Functional Cross-Reference

The following table provides a cross-reference to the functionality of the Bitsy Connector Board.

Feature	Function	Connector	Section	Driver
User Interface	LCD	J13	3.4.8	StrongARM 1110
	Touch panel	J15	3.4.10	UCB1200
	P/S2 keyboard	J5	3.4.3	SA-1111
	Backlight inverter	J12	3.4.7	ADSmartIO
Audio	Right speaker	J34	3.4.20	UDA1341 stereo codec
	Left speaker	J6	3.4.4	
	Microphone input	J35	3.4.21	
	Control signals	J31	3.4.18	
	Speaker output	J2	3.4.1	UCB 1200 codec
	Microphone input	J33	3.4.19	
Compact flash	CF socket	J28	3.4.17	SA-1111
	Development shunts	JP1		
Ethernet	RJ-45	J24		SMSC LAN91C111 (SA-1111 CF)
	Status indicators	D1, D2		
	CONF_SW	JP8		
	MII PHY interface	J27		
USB	Host socket	J39	3.4.23	SA-1111
	Client socket	J11	3.4.6	StrongARM 1110
	Host-to-Client loopback	J37, J38	3.3.5	n/a
Serial	Serial 1 RS-232	J20	3.4.15	StrongARM 1110
	Serial 2 mode select	JP4-JP7	3.3.2	
	Serial 2 infrared	U23		
	Infrared enable signal, /IRDA_ON	J3.9		
	Infrared drive power	R4 or R5		
	Serial 2 RS-232	J22	3.4.16	
	Serial 3 RS-232	J18	3.4.13	
	Serial 3 loopbacks	JP2, JP3	3.3.1	
Reset	Full system reset	SW1	3.2.1	StrongARM 1110
Power	Main power input	J16	3.4.11	Bitsy onboard power supply
	LCD Vee power input	J17	3.4.12	
	3V battery backup	J4	3.4.2	
	Power outputs	J19	0	
	On/off request	J36	3.4.22	
Battery charger	Battery power input	J7	0	Max846A
	Chemistry and number of cells	J29	3.3.3	
	Peak charge voltage	J30, J32	3.3.4	
I/O	User configurable as digital I/O, A/D and keypad.	J31	3.4.18	ADSmartIO
	Temperature sensor	J14	3.4.9	
	Digital I/Os	J31	3.4.18	UCB1200
	A/Ds	J31	3.4.18	

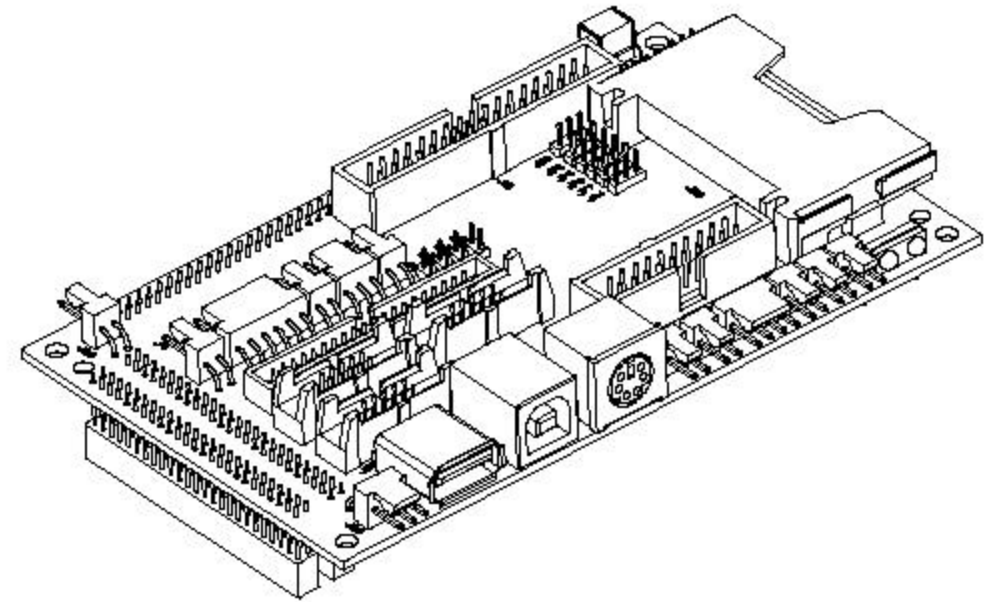
2.4 Mechanical Specifications

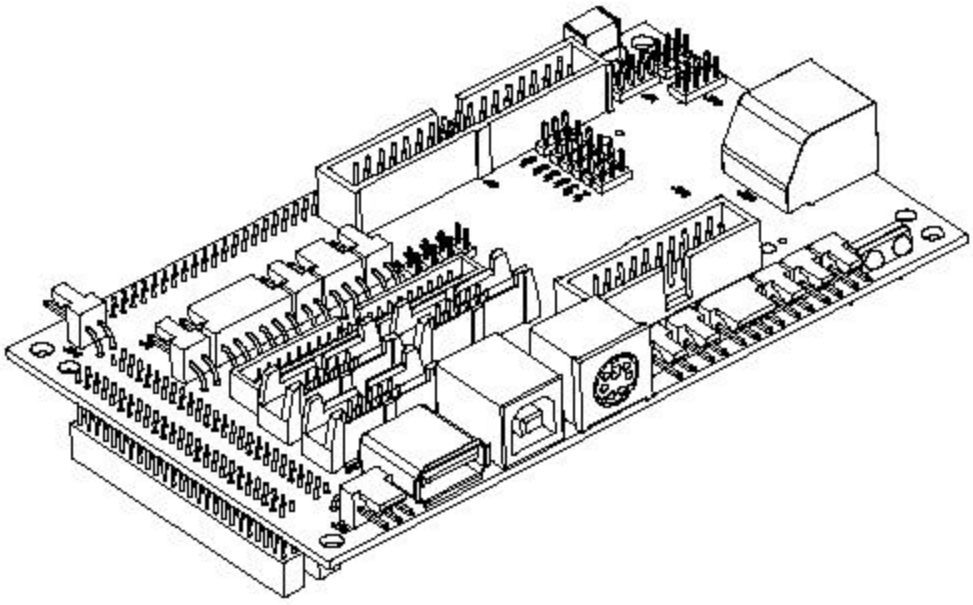
2.4.1 Mounting

Connector Board headers J1, J3, J9 and J10 are mounted on the underside of the board. These headers mate to headers with the same reference designators on the Bitsy. The boards can be secured together with 9/16 inch standoffs. Mounting holes are plated and connected to the Connector Board ground plane through zero-ohm resistor R43.

2.4.2 Mechanical Drawings

The following renderings of the Connector Board with the Ethernet and Compact Flash options populated (from ADS mechanical drawing #630111-80001).





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3 Hardware Reference

This section gives an overview of the hardware features of the Bitsy Connector board. This overview includes a description of the switches, jumper settings, connector and connector pinouts.

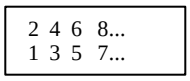
3.1 Pin Numbering and Abbreviations

3.1.1 Locating "Pin 1"

Many connectors and headers have a visible number on the board that indicates pin 1. If that pin is not clearly marked, look at the underside of the board. The square pad is pin 1.

3.1.2 Double-Row Header Numbering

Double-row headers on the board are numbered as shown in the figure to the right.



3.1.3 Abbreviations and Conventions

n/c	Not connected
2-3	Place shunt across pins 2 and 3
JP5.3	Pin 3 of JP5
GND	Bitsy Connector board ground plane

3.2 Switches

3.2.1 SW1: Reset Switch

This switch issues a hardware reset to the SA-1110. Press this button to restart the Bitsy without cycling power.

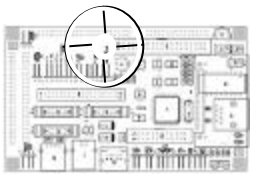
Hardware reset restarts the real-time clock, and most operating systems clear the contents of DRAM upon reset.

The Bitsy Connector Board places a 10k pull-up on the /RESET_IN (J10.45) line. When depressed, SW1 shorts the /RESET_IN line to ground. You can hold the Bitsy in reset by pressing and holding this button.

3.3 Jumper Settings

Jumpers on the Bitsy Connector board select a variety of functional options. All use 2mm shorting blocks (shunts) to select settings. Make sure power is turned off to the Bitsy Connector board when changing the position of a shunt.

3.3.1 JP2 and JP3: COM3 Loopbacks

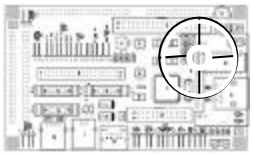


Type: 2-post headers, 2mm

JP2 and JP3 allow you to loop back DTR, DSR and DCD to simulate a null modem connection on J18.

JP2	JP3	Connects
1-2	*1-2*	*DCD, DSR and DTR*
1-2	*n/c*	*DCD to DTR*
n/c	*1-2*	*DSR to DTR*
n/c	*n/c*	*none*

3.3.2 JP4-JP7: Serial 2 Infrared, RS-232 or CMOS



Type: 3-post headers, 2mm

The Bitsy Connector Board adds infrared and RS-232 to the output drive Port 2. These jumpers select the mode of operation for Serial 2.

JP4	JP5	JP6	JP7	Serial 2 is…
1-2	*1-2*	*2-3*	*2-3*	*RS232*
2-3	*JP5.3 – JP6.2*		*2-3*	*3.3V CMOSl*
n/c	*n/c*	*1-2*	*1-2*	*Infrared (J22 not used)*
n/c	*n/c*	*n/c*	*n/c*	*not available*

3.3.3 J29: Chemistry and cells number selection (future)

Type: 3-post header, 2mm

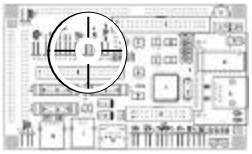
NOTE: This connector is not populated on Revision 1 of the Bitsy Connector board because the battery charger is not fully functional.

The Bitsy Connector Board includes an onboard battery charger and controller. These jumpers select the chemistry and number of cells used in the application.

J29	Function
1-2	*Li_Ion, 2 cells*
2-3	*NiCd/NiMH, 5 cells*
n/c	*NiCd/NiMH, 6 cells*

3.3.4 J30 and J32: Battery Maximum Charge Voltage (future)

Type: 2-post header, 2mm for J30 and J32

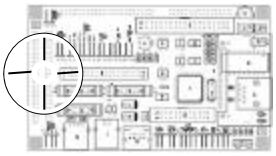


NOTE: These jumpers are not populated on Revision 1 of the Bitsy Connector board because the battery charger is not fully functional.

J30	J32	Function
1-2	*n/c*	*Maximum voltage set about 5% higher*
n/c	*1-2*	*Maximum voltage set about 5% lower*
n/c	*n/c*	*Maximum voltage set on standard values*
1-2	*1-2*	*Do Not Use: System may be damaged*

3.3.5 J37, J38: USB Host-Client Shared Lines

Type: 2-post headers, 2mm



It is possible, with this board, to use the Host USB wires and route them onto the client connector. This was done to provide support for the Bitsy board Rev. A.

J37	J38	Connection
1-2	*1-2*	*USB client uses same line as USB host*
n/c	*n/c*	*USB client uses its own line*

3.4 Connector Pinouts

The following tables describe connector pinouts and the type of connector. At least one pin of every connector is labeled on the Bitsy Connector board.

Signals that come from the Bitsy are referenced by connector and pin number in the "Bitsy" column of each pinout table.

3.4.1 J2: Speaker Mono

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

A speaker may be connected across the speaker outputs (bridge-tied load). Minimum speaker impedance is eight ohms. Voltages on the speaker outputs are 0-3.3V. If you connect one side of the speaker to ground, you must use a blocking capacitor; in this case, output power will be reduced to one quarter and power consumption will be cut in half from that of the bridge-tied load. Consult the UCB1200 specifications for further details.

Pin	Signal name	Bitsy	Description
1	*SPK_NEG*	*J3.22*	*Speaker connection (-)*
2	*SPK_POS*	*J3.21*	*Speaker connection (+)*

3.4.2 J4: Backup Battery Input

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

This connector allows you to connect an external battery to back up power on the Bitsy. If no other power source is available, the system will draw its sleep mode current from this connection. There is a steady-state 1MΩ load across these terminals. For reliable operation of the Bitsy, place a 0.100" shunt across the pins of this connector

Pin	Signal name	Bitsy	Description
1	*GND*	-	*Ground*
2	*BATPOS*	*J3.50*	*3 Volt battery, positive terminal*

3.4.3 J5: PS/2 Keyboard Input

Type: Mini DIN-6 socket housing, MDI-004-6PC

Recommended mating connector: PS/2 keyboard

Pin	Signal name	Bitsy	Description
1	*SIGP2*	*J10.7*	*PS/2 keyboard/trackpad data*
2	*n/c*	-	
3	*GND*	-	*Ground*
4	*PS2_VCC*	-	*+ 5 Volts, fused at 350 mA, self-resetting fuse*
5	*CLKPS2*	*J10.9*	*PS/2 trackpad/keyboard clock*
6	*n/c*	-	

3.4.4 J6: Stereo Speaker, Left Channel

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

The right speaker channel is on J34.

Pin	Signal name	Bitsy	Description
1	*SPKR1_NEG*	*J10.22*	*Speaker connection (-)*
2	*SPKR1_NEG*	*J10.24*	*Speaker connection (+)*

3.4.5 J7: Battery Power Input (future)

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

NOTE: This header is not populated on Revision 1 of the Bitsy Connector board because the battery charger is not fully functional.

This connector allows you to connect an external battery to supply the power to the Bitsy. If no direct power source is available through J16, the system will draw current from this connection. The backlight inverter will not be powered through J12 when this connector is used to provide the only power supply to the board and an external power source must be used to power the Backlight inverter if used.

Pin	Signal name	Bitsy	Description
1	*VBATT_NEG*	*J3.40*	*Battery negative contact*
2	*BATTERY_POS*	-	*Battery positive contact to charger*

3.4.6 J11: USB Client

Type: USB Type B, single-height, right-angle

Pin	Signal name	Bitsy	Description
1	*SLAVE_VCC_OUT*	-	*USB client*
2	*SLAVE_USB_NEG*	*J3.30*	
3	*SLAVE_USB_POS*	*J3.29*	
4	*SLAVE_USB_GND*	-	

3.4.7 J12: Backlight Inverter

Type: 7-pin header, 1.25mm, keyed, Molex #53261-0790

Recommended mating connector: Molex 51021-0700 or
Quadrangle Products kit #RT51021-0700-18

This connector will supply power to a Xentek LS520 backlight inverter and compatible devices with a one-to-one cable. The Bitsy PWM driver can electronically control the brightness of the inverter.

Pins 1 and 2 of this connector are directly connected to J16.1, which normally supplies power for the backlight.

Pin	Signal name	Bitsy	Description
1	*+12V_IN*	*J3.48*	*Power from J16.1 (alt. sources: J19.4, J3.48)*
2			
3	*GND*	-	*Ground*
4			
5	*/BACKLIGHTON*	*J3.18*	*Open-collector output on Bitsy with 5 or 12V pullup to control backlight on/off*
6	*BACKLIGHTPWM*	*J3.16*	*PWM brightness control (3.3V CMOS, 1.2kW series, 1mF filter)*
7	*GND*	-	*Ground*

3.4.8 J13: LCD Panel

Type: 34-pin IDC header, 2x17 0.100-inch spacing, shrouded, keyed

Recommended mating connector: IDC connector AMP #1-746288-8

This connector houses the signals to drive an 18-bit flat panel display. Signals are mapped identically to Bitsy connector J1, with the convenience of a 0.100 inch spacing connector. Electrical specifications for panel signals are listed in the Bitsy User's Manual.

Pin	Signal name	Description
1	*PNL_VEE*	*VEE (contrast)*
2	*PNL_GND*	*Ground*
3	*PNL_PIXCLK*	*Pixel Clock*
4	*PNL_HSYNC*	*Horizontal Sync.*
5	*PNL_VSYNC*	*Vertical Sync.*
6	*PNL_GND*	*Ground*
7	*PNL_RED0*	*Red Bit 0 (same as RED5)*
8	*PNL_RED1*	*Red Bit 1*
9	*PNL_RED2*	*Red Bit 2*
10	*PNL_RED3*	*Red Bit 3*
11	*PNL_RED4*	*Red Bit 4*
12	*PNL_RED5*	*Red Bit 5*
13	*PNL_GND*	*Ground*
14	*PNL_GREEN0*	*Green Bit 0*
15	*PNL_GREEN1*	*Green Bit 1*
16	*PNL_GREEN2*	*Green Bit 2*
17	*PNL_GREEN3*	*Green Bit 3*
18	*PNL_GREEN4*	*Green Bit 4*
19	*PNL_GREEN5*	*Green Bit 5*
20	*PNL_GND*	*Ground*
21	*PNL_BLUE0*	*Blue Bit 0 (same as BLUE5)*
22	*PNL_BLUE1*	*Blue Bit 1*
23	*PNL_BLUE2*	*Blue Bit 2*
24	*PNL_BLUE3*	*Blue Bit 3*
25	*PNL_BLUE4*	*Blue Bit 4*
26	*PNL_BLUE5*	*Blue Bit 5*
27	*PNL_GND*	*Ground*
28	*PNL_LBIAS*	*Enable*
29	*PNL_PWR*	*Panel power*
30		
31	*PNL_RL*	*Horizontal Mode Select*
32	*PNL_UD*	*Vertical Mode Select*
33	*PNL_ENA*	*Panel enable signal (StrongARM GPIO24)*
34	*n/c*	

3.4.9 J14: External Thermistor

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

The Bitsy can read a 33k thermistor on this input. Use the ADSmartIO controller to energize and read this input.

Pin	Signal name	Bitsy	Description
1	*TEMP_SENSOR_MINUS5*	*J3.5*	*Negative terminal of thermistor*
2	*TEMP_SENSOR_PLUS*	*J3.7*	*Positive terminal of thermistor*

3.4.10 J15: Touch Panel

Type: 4-pin header, 0.100-in spacing, friction lock, Molex 22-23-2041

Recommended mating connector: Molex 22-01-3047

The mapping shown of signal to edge of touch panel is an ADS convention. Interface cables are constructed to match this order. Some operating systems can tolerate swapping of positive (P) and negative (M) connections, and even swapping of X and Y pairs.

Pin	Signal name	Bitsy	Description
1	*TSMX*	*J3.15*	*Left edge of panel*
2	*TSPX*	*J3.11*	*Right*
3	*TSPY*	*J3.17*	*Bottom*
4	*TPMY*	*J3.13*	*Top*

3.4.11 J16: DC Power Input

Type: 3-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

Pin	Signal name	Bitsy	Description
1	*+12V_IN*	*J3.48*	*Backlight power (also to J12.1 and .2 and J16.1)*
2	*DCIN_POS*	*J3.44*	*Power input, positive*
3	*DCIN_NEG*	*J3.46*	*Power input common*

3.4.12 J17: LCD Vee Power Input

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

Vee is a high voltage that is required for biasing most passive displays. This connector can be used to tap off the high-voltage output of the Bitsy power supply.

In the rare case of a Bitsy with no onboard supply, this connector can be used to supply power to the Vee control circuit.

Pin	Signal name	Bitsy	Description
1	*+30V_GND*	*J3.32*	*Vee power input*
2	*+30V*	*J3.34*	

3.4.13 J18: Serial Port 3

Type: 2x5 header, 2mm, keyed

Recommended mating connector: 2x5 IDC, 2mm

Pin	Signal name	Bitsy	Description
1	*"DCD3"*	-	*DCD from external device*
2	*"DSR3"*	-	*DSR from external device*
3	*RXD3*	*J3.28*	*SA-1110 Serial Port 3, RS-232*
4	*RTS3*	*J3.27*	
5	*TXD3*	*J3.26*	
6	*CTS3*	*J3.25*	
7	*"DTR3"*	-	*DTR from external device*
8	*n/c*	-	
9	*GNDFILT3*	-	*to ground via filter*
10	*n/c*	-	

Note: The SA-1110 does not have hardware handshaking on its serial lines. The Bitsy uses SA-1110 GPIO lines to perform CTS/RTS handshaking.

3.4.14 J19: Bitsy Power Outputs

Type: Mini DIN-6 socket housing, MDI-004-6PC

Recommended mating connector: PS/2 keyboard

This connector makes all the

Note that while the Bitsy power supply is very robust, heavy loading of one output can drive voltages on the others higher. If this is an issue, consult ADS for information about how to set up the Bitsy to regulate power based on your application's load requirements.

Pin	Signal name	Bitsy	Description
1	*VCC*	*J10.48*	*+5V*
2	*GND*	-	*Ground*
3	*+3.3V*	*J10.47*	*+3.3V*
4	*+12V_IN*	*J3.48*	*Backlight inverter*
5	*POWERENABLE*	*J3.41*	*SA-1110 status signal*
6	*+1.75V*	*J3.42*	*SA-1110 core voltage*

3.4.15 J20: Serial Port 1

Type: 2x5 header, 2mm, keyed

Recommended mating connector: 2x5, 2mm

Pin	Signal name	Bitsy	Description
1	*DCD1*	*J10.28*	*SA-1110 Serial Port 1 and GPIOs, RS-232*
2	*DSR1*	*J10.30*	
3	*RXD1*	*J10.34*	
4	*RTS1*	*J10.40*	
5	*TXD1*	*J10.36*	
6	*CTS1*	*J10.38*	
7	*DTR1*	*J10.32*	
8	*RIB1*	*J10.26*	
9	*GNDFILT1*	-	*to ground via filter*
10	*n/c*	-	

Note: The SA-1110 does not have hardware handshaking on its serial lines. The Bitsy uses SA-1110 GPIO lines to perform CTS/RTS handshaking and for DCD, DTR/DSR functionality.

3.4.16 J22: Serial Port 2

Type: 2x5 header, 2mm" IDC, keyed

Recommended mating connector: 2x5 IDC, 2mm

The Bitsy Connector Board output drivers for Serial Port 2 are selected by JP4-JP7 (section 3.3.2). The CMOS signals, if selected. come from J3.19 and .20.

Pin	Signal name	Bitsy	Description
1	*n/c*	-	
2			
3	*RXD2*	*(J3.19)*	*SA-1110 Serial Port 2 RS-232 or TTL*
4	*n/c*	-	
5	*TXD2*	*(J3.20)*	
6	*n/c*	-	
7			
8			
9	*GNDFILT2*	-	*to ground via filter*
10	*n/c*	-	

3.4.17 J28: Compact Flash

The 50-pin compact flash socket conforms to the compact flash standard for 3.3V and 5V Type II cards. It will supply up to 500 mA of 5V current. The socket is normally de-energized; the operating system is responsible for turning on the socket when a card is inserted and turning it off when the card is removed. The socket includes an integral card ejector.

3.4.18 J31: UCB1200, ADSmartIO, IRQs and UDA1341 Control

Type: Samtec #STMM-120-02-T-D-SM

Recommended mating connector: Samtec TCSD series cable

Pin	Signal name	Pin	Description		Bitsy
1	*UCB_IO0*		*General purpose IO UCB1200*		*J10.8*
3	*UCB_IO1*				*J10.6*
5	*UCB_IO2*				*J10.4*
7	*UCB_IO3*				*J10.2*
9	*UCB_IO4*				*J10.5*
11	*UCB_IO5*				*J3.12*
13	*UCB_IO6*				*J3.14*
15	*UCB_IO7*				*J3.3*
17	*UCB_IO8*				*J3.2*
19	*UCB_IO9*				*J3.1*
	EXT_IRQ1	*2*	*External interrupts*		*J10.1*
	EXT_IRQ2	*4*			*J10.3*
	SMTIO0	*6*	*PD0*	*General purpose IO ADSmartIO*	*J10.15*
	SMTIO1	*8*	*PD1*		*J10.13*
	SMTIO2	*10*	*PC6*		*J3.35*
	SMTIO3	*12*	*PC7*		*J3.37*
	ANIN0	*14*	*Analog Inputs*		*J10.35*

Pin	Signal name	Pin	Description		Bitsy
	ANIN1	*16*	*ADSmartIO*		*J10.37*
	ANIN2	*18*			*J10.39*
	ANIN3	*20*			*J10.41*
	VREF	*22*	*Reference voltage for UCB1200 and/or Vee generator*		*J10.43*
21	*AGSTAT*		*AGC Status*	*UDA1341*	*J3.4*
23	*CODEC_OFL*		*Overflow*		*J3.6*
25	*AMP_SDWN*		*Shutdown codec*		*J3.8*
27	*QMUTE*		*Quick Mute*		*J3.10*
	SW2	*26*	*position 3*	*Bitsy DIP sw S1 OFF=open, ON=short to GND*	*J3.31*
	SW3	*28*	*position 4*		*J3.33*
	/SHDN_RS232	*24*	*0V turns off Bitsy Serial 1 RS-232 buffer*		*J10.46*
29	*GPIO27_CLK*		*StrongARM clock for SA-1111*		*J3.47*
31	*COL0*		*PA0*	*Keypad, A/D or Digital I/O ADSmartIO*	*J10.27*
33	*COL1*		*PA1*		*J10.29*
35	*COL2*		*PA2*		*J10.31*
37	*COL3*		*PA3*		*J10.33*
	ROW0	*30*	*PC0*		*J10.17*
	ROW1	*32*	*PC1*		*J10.19*
	ROW2	*34*	*PC2*		*J10.21*
	ROW3	*36*	*PC3*		*J10.23*
	ROW4 [1]	*38*	*PC4*		*J10.25*
39	*n/c*	*39*			-
40	*GND*	*40*	*Ground*		-

3.4.19 J33: Mono Microphone Input

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

Input impedance of the microphone connection is 25 kΩ. Specifications for the UCB1200 call for 1kΩ or electret microphones. Microphones with other impedance may be used. Microphones connected should use a DC blocking capacitor between the microphone and MIC+ input.

Pin	Signal name	Bitsy	Description
1	*MICGND*	*J3.23*	*Microphone (-)*
2	*MICSIG*	*J3.24*	*Microphone (+)*

3.4.20 J34: Stereo Speaker, Right Channel

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

The left speaker channel is on J6.

Pin	Signal name	Bitsy	Description
1	*SPKR2_NEG*	*J10.18*	*Speaker connection (-)*
2	*SPKR2_POS*	*J10.20*	*Speaker connection (+)*

[1] On the Bitsy Connector Board, *ROW4* is used to initiate/monitor battery charging, if enabled.

3.4.21 J35: Stereo Microphone

Type: 3-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

Input impedance of the microphone connection is 25 kΩ. Specifications for the UCB1200 call for 1kΩ or electret microphones. Microphones with other impedance may be used. Microphones connected should use a DC blocking capacitor between the microphone and MIC+ input.

Pin	Signal name	Bitsy	Description
1	*MIC 1_IN*	*J3.42*	*Left Microphone*
2	*GROUND*	*-*	*Ground*
3	*MIC2_IN*	*J3.44*	*Right Microphone*

3.4.22 J36: Request On/Off

Type: 2-pin header, 0.100-in spacing, friction lock, Molex 22-23-2021

Recommended mating connector: Molex 22-01-3027

Short these pins together to generate a falling edge on the Bitsy power management controller. This input is generally used as an "on/off" switch to switch the system between Run and Sleep states.

Pin	Signal name	Bitsy	Description
1	*GROUND*	*-*	*Ground*
2	*RQONOFF*	*J3.45*	*to Bitsy power manager, which includes always-on 10k pull-up*

3.4.23 J39: USB Host

Type: USB Type A socket, right-angle

Recommended mating connector: USB cable.

This USB host port is powered by USB power controller U1.

Pin	Signal name	Bitsy	Description
1	*VCC_OUT*	*-*	*USB Host*
2	*MASTER_USB_NEG*	*J10.14*	
3	*MASTER_USB_POS*	*J10.16*	
4	*USB_GND*	*-*	

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4 Board Revision History

4.1.1 Identifying the board revision

The product revision number of the Bitsy Connector board is etched on the underside of the printed circuit board. That number is 170111-8000x, where "x" is the board revision.

4.1.2 Revision History

The following are the most significant changes that have occurred.

Rev. 1:

Initial release
Battery charger not functional

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