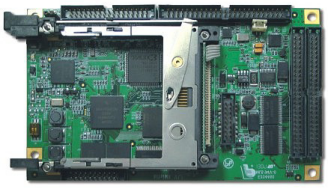
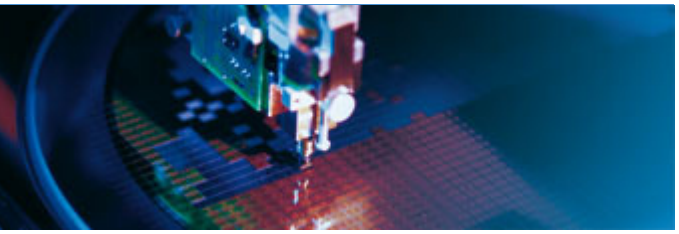
USER MANUAL





Bitsy G5

i.MX31 Single Board Computer

Rev A – July 2011 – 110121-4001A

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Revision History

Issue no.	*PWB*	*Date*	*Comments*
1		Aug-2007	Preliminary release Sections 1,2, 3, and 7
2		Sept-2007	Second preliminary release
3		Sept-2009	Third preliminary release Eurotech style update
A		July-2011	Initial release

For contact details, see page 22.

Contents

1 Introduction

1.1 Overview

The Bitsy G5 is a full-featured single board computer using the Freescale i.MX31 multimedia applications processor. The Bitsy G5 is designed to meet the needs of embedded and graphical systems developers.

This manual applies to the latest revision of the Bitsy G5, as listed in Section 7.2.

1.2 Features

1.2.1 Processor

- Freescale i.MX31 32-bit ARM RISC Processor
- ARM1136JF-S core with Vector Floating Point Coprocessor and Multi-level Cache System
- Multimedia support including VGA MPEG-4 Hardware Encoder, Image Processing Unit and Graphics Accelerator
- Clock rates up to 532 MHz

1.2.2 Power Supply

- 6-15 V main power input
- Freescale MC13783 Power Management and Audio Circuit

1.2.3 Memory

- 128 MB DDR SDRAM
- 32 MB NOR Flash memory [1]
- PCMCIA, Type I and II, 3.3 and 5 V
- Battery-backed real-time clock

[1] The Bitsy G5 supports up to 64 MB of NOR flash memory.

1.2.4 Communications

- USB 2.0 Host port supporting high (480 Mbps), full (12 Mbps) and low (1.5 Mbps) speeds
- On-The-Go (OTG) port supporting full and low speeds
- Three Serial ports
  - Serial 1: EIA-232 (9-wire)[2]
  - Serial 2: 3.3 V logic level (3-wire)[3]
  - Serial 3: EIA-232 (5-wire)[2]
- I^2C bus with I^2C master device
- Serial Peripheral Interface (SPI) port
- Secure Digital (SD/SDIO) and Multimedia Card (MMC) support
- Expansion bus
- 10/100BT Ethernet, RJ45 with optional personality board

1.2.5 User Interface and Display

- Flat Panel interface
- Analog Touch Panel interface (four- or five-wire options)

1.2.6 I/O

- Nine ADSmartIO™ ports configurable for digital I/O, A/D inputs (up to four) and/or up to 4x5 keypad
- Ten digital I/Os
- Backlight control signals for Intensity and On/Off

1.2.7 Audio Interface

- Codec implemented by Freescale MC13783 Power Management and Audio Circuit
- Stereo microphone input
- Stereo 1W speaker outputs
- Headphone output with optional personality board

[2] A 3.3 V logic level configuration is available as a volume production option.

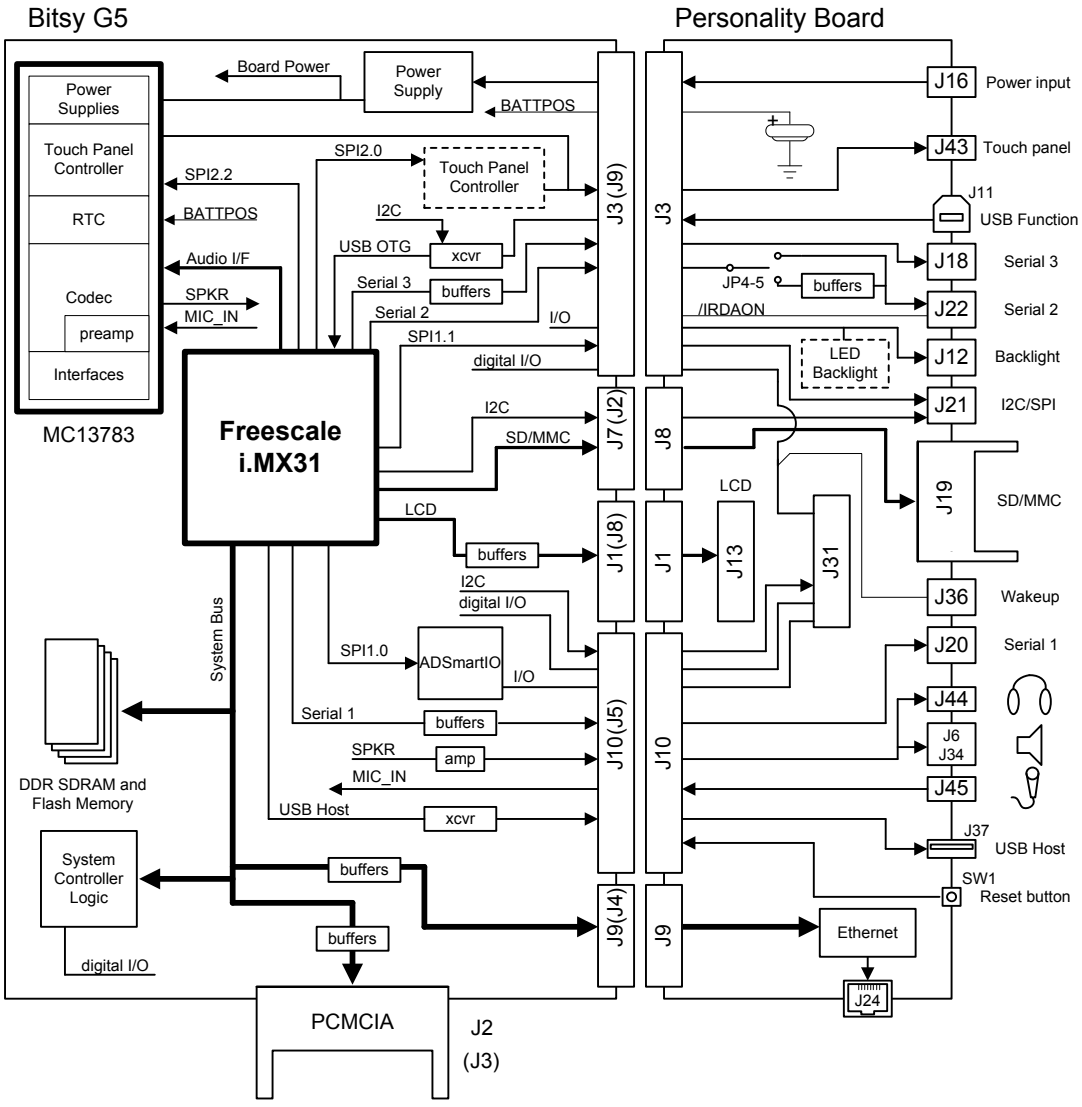
[3] Optional personality board supports EIA-232 levels on Serial 2.

1.3 Block Diagram

The following diagram illustrates the system organization of the Bitsy G5. Arrows indicate the direction of control and not necessarily signal flow. Optional circuitry is drawn with dotted lines.

Connector reference designators given are for the Bitsy family products. Connector reference designators on the Bitsy G5 are labeled differently and are shown as (Jx).

The diagram also illustrates the Bitsy G5 Personality Board. See Section 2.1.2 for additional details about the personality board.



2 Getting Started

2.1 Development Systems

Bitsy G5 boards are shipped as development systems designed to get the developer up and running quickly.

To use the system, simply plug the power supply into the mini DIN-8 receptacle on the system.

If the screen does not display anything after five to ten seconds, check the *Frequently Asked Questions*, below. Most operating systems cold boot within twenty seconds.

2.1.1 System Components

A typical development system is shown at right. It consists of the following components:

- Bitsy G5 single-board computer
- Bitsy G5 Personality Board
- Flat panel display and cable
- Backlight inverter and cable
- Touch screen and cable
- 100-240 VAC power adapter
- Plexiglas mounting
- Developer's Cable Kit including
  - Serial Port DB9 adapter (Eurotech cable #610111-80001)
  - DB9F/F null modem cable
  - USB A-B cable
- Operating system of your choice
- User's Guide (this document and operating system guide)

Please make sure you have received ***all*** the components before you begin your development.

2.1.2 Bitsy G5 Personality Board

The Bitsy G5 often works in tandem with another board to add functionality and customize the system for its application. The Bitsy G5 Personality Board adds custom circuits and locates connectors best suited for the application design.

Signals from the Bitsy G5 are brought out to standard interface connectors and dedicated headers. Connectivity is included for a wide range of functions including power, touch panel, USB, serial, backlight, I^2C, SPI, SD/MMC, LCD display and audio. A reset button is provided also.

The personality board expands the Bitsy G5 functionalities. An Ethernet chip and associated line drivers connected to the Bitsy G5 expansion bus provide Ethernet capability. An EIA-232 option is included for the Serial 2 port. Likewise, an optional step-up DC/DC converter can be populated to drive up to 20 White LED backlights.

2.2 Frequently Asked Questions

The following are some of the most commonly asked questions about development systems:

Q: When I plug in power, my screen is white and nothing comes up on it.

A: Check the connector seating. The flat panel connector may have come loose in shipping. Press it firmly into the panel and reapply power to your system.

Q: Is there online support?

A: Yes. Information about the Bitsy G5 hardware and software is available on the Eurotech support site at http://www.eurotech-inc.com. See Section 2.3 for further details.

Q: When I plug in power, the LED doesn't turn on.

A: Your system may still be booting. The LED is software-controlled and is not necessarily turned on at boot.

Q: Do I have to turn off the system before I insert a PCMCIA?

A: No. The Bitsy G5 supports hot-swapping of PCMCIA cards. Consult the operating system documentation for details.

Q: Do I need to observe any ESD precautions when working with the system?

A: Yes. If possible, work on a grounded anti-static mat. At a minimum, touch an electrically grounded object before handling the board or touching any components on the board.

Q: What do I need to start developing my application for the system?

A: You will need a flash ATA card (32 MB or larger, 128 MB recommended) and the cables supplied with your system to interface your development station to the system. For further direction, consult the Eurotech guide for the installed operating system.

Q: Who can I call if I need help developing my application?

A: Eurotech provides technical support to get your development system running. For customers who establish a business relationship with Eurotech, we provide support to develop applications and drivers.

Q: Can I upgrade the version of the operating system?

A: Yes. Eurotech provides regular operating system updates on its developers' web site. For operating systems not maintained by Eurotech, contact the operating system vendor.

Q: I would like to interface to a different display panel. How can I do this?

A: Eurotech may have already interfaced to the panel of which you are interested. Consult Eurotech for availability.

2.3 Errata, Addenda and Further Information

Errata and addenda to this manual are posted on the Eurotech support forums along with the latest release of the manual. Consult the support forums any time you need further information or feel information in this manual is in error. You may access the forums from the Eurotech support site,

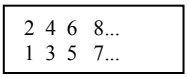
http://www.eurotech-inc.com

In addition to manuals, the support forums include downloads, troubleshooting guides, operating system updates and answers to hundreds of questions about developing applications for Eurotech products. You may also post questions you have about Eurotech products on the forums.

3 Hardware Reference

This section gives an overview of the hardware features of the Bitsy G5. The overview includes a description of the switches, jumper settings, connectors, and connector pinouts.

Many connectors and headers have a visible number or marking on the board that indicates pin 1. As seen from the component side, double-row headers on the board are numbered as shown in the figure to the right.



If that pin is not clearly marked, there are two ways to locate pin 1:

1. For through-hole connectors, look at the underside of the board. The square pad is pin 1.
2. For surface-mount connectors, look for numbers silk screened on the component side of the Bitsy G5. The "component side" of the Bitsy G5 is the one on which the PCMCIA ejector is installed.

3.1 Switches, Controls and Indicators

3.1.1 S1: DIP Switch

S1 is a two-position DIP switch located on the edge of the board at the opening of the PCMCIA socket. When in the "ON" position, switches are closed and connect to ground. Otherwise, they are pulled up.

DIP switch positions "1" and "2" connect to the i.MX31. Most operating systems on the Bitsy G5 reserve these switches for their use. Consult the operating system manual for details.

3.1.2 D9: Green LED Indicator

The Bitsy G5 has one onboard green light-emitting diode (LED), located on the corner of the board next to JP2, that is controlled by the processor. The LED is driven by the same buffers as the display driver data lines. The LED will be off when the display buffers are disabled.

3.2 Jumper Settings

There is one user-selectable jumper on the Bitsy G5. It uses a 2 mm shorting block (shunt) to select the setting. Turn off power to the Bitsy G5 before changing the position of a shunt.

3.2.1 JP2: LCD Display Power Select

Type: 3-post header, 2 mm

This jumper selects the supply voltage for the LCD display. The three-pin header is located near the PCMCIA ejector button.

Jumper Setting	Voltage Selected
1-2	*Vcc (5.0 V)*
2-3	*Vddx (3.3 V)*

WARNING! The pin out of JP2 on the Bitsy G5 is not the same as the pin out for the BitsyXb. Make sure you have selected the correct voltage before connecting the panel. Flat panels can be irreparably damaged by incorrect voltages.

3.3 Signal Connectors

The following tables describe the electrical signals available on the connectors of the Bitsy G5. Each section provides relevant details about the connector including part numbers, mating connectors, signal descriptions, and references to related chapters.

Legend:

n/c	Not connected
GND	Bitsy G5 ground plane
(4.1)	Reference section(s) for signals

Signal Types:

I	signal is an input to the system
O	signal is an output from the system
IO	signal may be input or output
P	power and ground
A	analog signal
OC	open collector output

The reference designators on the Bitsy G5 are labeled differently than the previous four generations of Bitsy family products or mating personality boards. The reference designators for the Bitsy family products are given in the following sections with the Bitsy G5 reference designators shown as (Jx).

3.3.1 J1 (J8): LCD Panel Interface Connector

Board Connector: 2x17 shrouded header, 2 mm, Samtec STMM-117-02-G-D

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-117-02-F-D-500)

The following table describes the signals on the LCD panel interface connector. Signal names shown are for TFT active matrix color LCDs at 18 bpp (bit-per-pixel). Signals from the i.MX31 are buffered and RFI filtered before reaching J1 (J8). The LCD panel output buffers operate at a fixed 3.3 V.

Pin	i.MX31 Signal Name	Color Active TFT Display at 18bpp	
		Eurotech Signal Name	Description
1		*n/c*	
2		*GND*	*ground*
3	*FPSHIFT*	*PNL_PIXCLK*	*Pixel Clock*
4	*HSYNC*	*PNL_HSYNC*	*Horizontal Sync*
5	*VSYNC3*	*PNL_VSYNC*	*Vertical Sync*
6		*GND*	*ground*
7	*LD12*	*PNL_RED0*	*Red Bit 0*
8	*LD13*	*PNL_RED1*	*Red Bit 1*
9	*LD14*	*PNL_RED2*	*Red Bit 2*
10	*LD15*	*PNL_RED3*	*Red Bit 3*
11	*LD16*	*PNL_RED4*	*Red Bit 4*
12	*LD17*	*PNL_RED5*	*Red Bit 5*
13		*GND*	*ground*
14	*LD6*	*PNL_GREEN0*	*Green Bit 0*
15	*LD7*	*PNL_GREEN1*	*Green Bit 1*
16	*LD8*	*PNL_GREEN2*	*Green Bit 2*
17	*LD9*	*PNL_GREEN3*	*Green Bit 3*
18	*LD10*	*PNL_GREEN4*	*Green Bit 4*

Pin	i.MX31 Signal Name	Color Active TFT Display at 18bpp	
		Eurotech Signal Name	Description
19	LD11	PNL_GREEN5	Green Bit 5
20		GND	ground
21	LD0	PNL_BLUE0	Blue Bit 0
22	LD1	PNL_BLUE1	Blue Bit 1
23	LD2	PNL_BLUE2	Blue Bit 2
24	LD3	PNL_BLUE3	Blue Bit 3
25	LD4	PNL_BLUE4	Blue Bit 4
26	LD5	PNL_BLUE5	Blue Bit 5
27		GND	ground
28	DRDY0	PNL_LBIAS	Data Enable
29		PNL_PWR	Vcc (5 V) or 3.3 V (3.2.1)
30			
31		PNL_RL	Horizontal mode select (set by R247 or R246)[4]
32		PNL_UD	Vertical mode select (set by R248 or R249)[4]
33	reserved		
34	ADSmartIO (PD4)	VCON	low-voltage adjust for contrast control of some displays

3.3.2 J2 (J3): PCMCIA

Integrated Ejector: FCI 95620-050CA

The 68-pin PCMCIA socket conforms to the PCMCIA standard for 5V-tolerant Type II cards, and can also be run at 3.3 V. Normally, the socket is 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. Ejector hardware is standard. Vpp (pins 18 and 52), which is 12 V in older PCMCIA implementations, is left unconnected in this implementation.

3.3.3 J3 (J9): Power, I/O, Serial 2 & 3, USB, Touch Screen and others

Board Connector: 2x25 shrouded header, 2 mm, Samtec STMM-125-02-G-D

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-125-02-F-D-500)

Pin	Name	Pin	Type	Description
1	EIO9		IO	General-purpose Digital I/Os
	EIO8	2	IO	
3	EIO7		IO	
	GND	4	P	ground
		6		
	VCC	8	PO	5 V
		10		
5	reserved			
7	reserved			
9	/IRDAON		O	External IRDA control

[4] The LCD panel scan direction is selected by changing the voltage on the PNL_RL and PNL_UD signals. These signals are pulled up on standard Bitsy G5 boards.

Pin	Name	Pin	Type	Description		
11	TSPX		AIO	right	UL	Touch screen
13	TSMY		AIO	top	LR	
15	TSMX		AIO	left	LL	
17	TSPY		AIO	bottom	UR	
	EIO5	12	IO	General-purpose Digital I/Os		
	EIO6	14	IO			
	BACKLIGHT PWM	16	AO	Backlight Intensity		
	/BACKLIGHT ON	18	OC	Backlight On/Off		
19	RXD2T		I	Serial 2 (3.3 V logic level)		
	TXD2T	20	O			
21	WIPER		AI	Touch screen wiper (optional 5-wire touch)		
	reserved	22				
23	GND		P	ground		
	PE2	24	O	Power Enable #2 for external devices		
25	CTS3		I	Serial 3 (EIA-232)		
	TXD3	26	O			
27	RTS3		O			
	RXD3	28	I			
29	USB+		IO	USB Client		
	USB-	30	IO			
31	GND		P	ground		
	HP_IN	32	I	Headphone connected		
33	USB_RECONN		O	USB Client power management [5]		
	GND	34	P	ground		
		36				
35	STXD		O	MOSI		SPI signals
37	SRXD		I	MISO		
39	SCLK2		O	SCLK		
43	SFRM2		O	SS		
	VBATT_POS	38	PI	External battery		
	reserved	40				
41	POWERENABLE		O	Power supply control		
	/PE1	42	O	Power Enable #1 for external devices		
	DCIN_POS	44	PI	External power		
		48				
45	/RQONOFF		I	"Request On/Off" Switch		
	GND	46	P	ground		
47						
49						
	BATPOS	50	PI	Real-time clock backup battery		

[5] The USB_RECONN output does not have series resistance or ESD protection.

3.3.4 J7 (J2): I²C and SD/MMC

Board Connector: 2x8 shrouded header, 2 mm, Samtec STMM-108-02-G-D-SM

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-108-02-F-D-450) [6]

This header supplies the signals for the I²C bus and SD/MMC interface.

Pin	Name	Type	Description
1	*I2C_SDA*	*IO*	*I²C bus*
2	*I2C_SCL*	*IO*	
3	*GND*	*P*	*ground*
4		*P*	
5	*SD_DAT2*	*IO*	*SD/MMC signals*[7]
6	*SD_DAT3*	*IO*	
7	*SD_CMD*	*IO*	
8	*SD_DAT0*	*IO*	
9	*SD_CLK*	*O*	
10	*/SD_CD*	*I*	
11	*VDDX*	*PO*	*3.3 V*
12	*VCC*	*PO*	*5 V*
13	*/SD_WP*	*I*	*SD/MMC signals*
14	*/SDIO_IRQ*	*I*	
15	*/SD_PWREN*	*O*	
16	*SD_DAT1*	*IO*	

3.3.5 J9 (J4): Expansion Bus

Board Connector: 2x25 shrouded header, 2 mm, Samtec STMM-125-02-G-D

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-125-02-F-D-500)

These signals function as a 3.3 V digital expansion bus to expand the capabilities of the Bitsy G5.

Pin	Name	Pin	Type	Description
1	*GND*		*P*	*ground*
	n/c	*2*		
	n/c	*4*		
3	*PCBD10*		*IO*	*Data8-10*
5	*PCBD9*		*IO*	
7	*PCBD8*		*IO*	
	PCBD2	*6*	*IO*	*Data0-2*
	PCBD1	*8*	*IO*	
	PCBD0	*10*	*IO*	
9	*n/c*			
11	*n/c*			
	n/c	*12*		
13	*PCBA11*		*O*	*Address 11*
15	*VCC*		*PO*	*5 V*

[6] Note that the STMM header is 0.050-inch higher than the other 2 mm headers on the board because it is a surface-mount part. Use a correspondingly shorter socket on mating boards.

[7] Signal /SD_CD includes a 4.7kΩ pull-up resistor.

Pin	Name	Pin	Type	Description
17	/CARDBWAIT		I	Wait
19	CARDBRES		O	Reset
	PCBA0	14	O	Address0-6
	PCBA1	16	O	
	PCBA2	18	O	
	PCBA3	20	O	
	PCBA4	22	O	
	PCBA5	24	O	
	PCBA6	28	O	
21	n/c			
23	+3.3V		PO	+3.3 V
25	/CARDBON		O	5 V power control
	n/c	26		
27	/CF_INT		I	Interrupt
29	/CARDBMWR		O	Memory Write
31	n/c			
33	/BEB1		O	IO Read
	PCBA7	30	O	Address7-9
	PCBA8	32	O	
	PCBA9	36	O	
	/CARDBMRD	34	O	Memory Read
35	n/c			
37	CS_CF		O	Chip Select
		38		
39	PCBD15		IO	Data11-15
41	PCBD14		IO	
43	PCBD13		IO	
45	PCBD12		IO	
47	PCBD11		IO	
	PCBD7	40	IO	Data3-7
	PCBD6	42	IO	
	PCBD5	44	IO	
	PCBD4	46	IO	
	PCBD3	48	IO	
49	n/c			
	/CARDBON_3P3V	50	O	3.3 V power control

3.3.6 J10 (J5): ADSmartIO, USB, Serial 1, Stereo Audio, I/Os

Board Connector: 2x25 shrouded header, 2 mm, Samtec STMM-125-02-G-D

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-125-02-F-D-500)

Pin	Name	Pin	Type	Description	
1	/EXT_IRQ1		I	External Interrupt 1	
3	/EXT_IRQ2		I	External Interrupt 2	
5	EIO4		IO	General-purpose Digital I/Os	
	EIO3	2	IO		
	EIO2	4	IO		
	EIO1	6	IO		
	EIO0	8	IO		
7	reserved				
9	reserved				
	USB_PWR_SENSE	10	I	Sense from external USB Host power switch	
	USB_PWR_CTRL	12	O	Control to external USB Host power switch	
	USB_UDC-	14	IO	USB Host	
	USB_UDC+	16	IO		
11	I2C_SCL		IO	PC6	I^2C clock [8]
13	reserved				
15	reserved				
	SPKR_R-	18	AO	Stereo Speaker, right channel	
	SPKR_R+	20	AO		
	SPKR_L-	22	AO	Stereo Speaker, left channel	
	SPKR_L+	24	AO		
17	ROW0		IO	PC0	ADSmartIO
19	ROW1		IO	PC1	
21	ROW2		IO	PC2	
23	ROW3		IO	PC3	
25	ROW4		IO	PC4	
27	COL0		IO	PA0	
29	COL1		IO	PA1	
31	COL2		IO	PA2	
33	COL3		IO	PA3	
	RI1	26	I	Serial 1 (EIA-232)	
	DCD1	28	I		
	DSR1	30	I		
	DTR1	32	O		
	RXD1	34	I		
	TXD1	36	O		
	CTS1	38	I		
	RTS1	40	O		
35	/EXT_IRQ3		I	External Interrupt 3	
37	VDDX		PO	3.3 V	

[8] Standard Bitsy G5 boards do not connect PC6 and PC7 of the ADSmartIO controller to the I^2C bus.

Pin	Name	Pin	Type	Description
39 41	MIC_GND		P	Microphone ground
	MIC_L	42	AI	Stereo Microphone
	MIC_R	44	AI	
43	reserved			
45	/RESET_IN		I	External reset
47	VDDX		PO	3.3 V
	VCC	46 48	PO	5 V
49	I2C_SDA		IO	PC7 | I^2C data [8]
	GND	50	P	Ground

3.3.7 J11 (J7): Supercapacitor Input

Supercapacitors are not supported by the Bitsy G5. This socket may not be populated on all boards.

3.3.8 J16 (J1): JTAG/In-System Programming

Board Connector: 2x10 shrouded header, 2 mm, Samtec STMM-110-02-T-D

Recommended Board-to-Cable Connector: TCSD series
Recommended Board-to-Board Connector: ESQT series (e.g. ESQT-110-02-F-D-500)

This header is used during manufacturing for programming and debug, but is not otherwise supported for application use. Production customers may use this header to reprogram boot code.

Pin	Name	Type	Description
1	/PM_RSTMCU	I	System reset
2	/TRST	I	JTAG
3	TMS	I	
4	GND	P	
5	TCLK	I	
6	GND	P	
7	TDI	I	
8	GND	P	
9	TDO	O	
10	GND	P	
11	RTCK	O	
12	JTAG_VREF	PO	Reference voltage
13	PRG	I	ATMega/ADSmartIO
14	VDDX	PO	AVR Vref
15	MISO	O	ATMega/ADSmartIO
16	/DE	I	JTAG
17	MOSI	I	ATMega/ADSmartIO
18	GND	P	
19	SCK	I	
20	GND	P	

4 Board Revision History

4.1 Identifying the board revision

The product revision number of the Bitsy G5 is etched on the underside of the printed circuit board. That number is 170121-4000x, where "x" is the board revision.

4.2 Revision History

This section describes the differences between the revisions of the Bitsy G5.

4.2.1 Revision 2

Pre-production

If you are using a Bitsy G5 as a replacement for the BitsyXb, please note these differences from revision A of the BitsyXb.

New Features

Freescale i.MX31 processor replaces XScale PXA270.

Freescale MC13783 Power Management and Audio Circuit:

- Replaces discrete microphone preamp circuitry and Crystal CS4202 AC'97 stereo codec.
- Replaces discrete switching regulator, linear voltage regulator, and step down converters providing supply voltages for processor, memories, CPLD, and IO.
- Provides 4-wire analog touch panel capability.
- Replaces discrete RTC component.

DDR SDRAM replaces SDR SDRAM.

USB 2.0 Host port and USB 2.0 On-The-Go (OTG) port replaces USB 1.1 ports.

Changes

Pinout of JP2 swapped.

Voltage Setting	Jumper Setting	
	From	To
Vddx (3.3 V)	*1-2*	*2-3*
Vcc (5.0 V)	*2-3*	*1-2*

Connector reference designators labeled differently. In this manual, all Bitsy G5 reference designators are shown as (Jx).

Input Power connector, J6, removed.

Vee Adapter connector, J8, removed.

Series resistor removed from USB_RECONN output, J3 (J9) pin 33.

Option to operate LCD panel buffers at either 3.3 V or 5 V removed. Supports LCD display data at 3.3 V only.

Supercapacitor Input connector, J11 (J7), not supported.

SD/MMC not supported.

RTC interface changed from I^2C bus to SPI.

Pull-up resistor value on I^2C bus changed from 1.2kΩ to 2.2kΩ.

Crystal frequencies changed. Removed 24.576 MHz, 32.768 kHz, and 13.000 MHz. Added 19.2 MHz and 26.000 MHz.

USB OTG transceiver added to I^2C bus at address 010 1101.

Signals on J1 (J8) changed as follows:

Pin	From	To
1	*PNL_VEE*	*n/c*
33	*PNL_ENA*	*reserved*

External CompactFlash not supported.

Connector J9 (J4) used for 3.3 V expansion bus only.

Signals on J9 (J4) changed as follows:

Pin	From	To
2	*/CARDBDET2*	*n/c*
4	*/CARDB16*	*n/c*
9	*CARDBSTSCHG*	*n/c*
11	*CARDBSPK*	*n/c*
12	*PCBA0*	*n/c*
13	*/CARDBREG*	*PCBA11*
14	*PCBA1*	*PCBA0*
16	*PCBA2*	*PCBA1*
18	*PCBA3*	*PCBA2*
20	*PCBA4*	*PCBA3*
21	*/CARDBVS2*	*n/c*
22	*PCBA5*	*PCBA4*
24	*PCBA6*	*PCBA5*
26	*CARDBVCC*	*n/c*
27	*CARDBIRQ*	*/CF_INT*
28	*PCBA7*	*PCBA6*
30	*PCBA8*	*PCBA7*
31	*/CARDBIOWR*	*n/c*
32	*PCBA9*	*PCBA8*
33	*/CARDBIORD*	*/BEB1*
35	*/CARDB_VS1*	*n/c*
36	*PCBA10*	*PCBA9*
37	*/CARDBCE2*	*CS_CF*
38	*/CARDBCE1*	*CS_CF*
49	*/CARDBDET1*	*n/c*

External temperature probe not supported.

Battery trickle charger not supported.

Signals on J3 (J9) changed as follows:

Pin	From	To
5	*TEMP_SENSOR_MINUS*	*reserved*
7	*TEMP_SENSOR_PLUS*	*reserved*
22	*CHARGE*	*reserved*
40	*VBATT_NEG*	*reserved*

External PS/2 keyboard not supported.

Signals on J10 (J5) changed as follows:

Pin	From	To
7	*SIGPS2*	*reserved*
9	*CLKPS2*	*reserved*
13	*SMTIO1*	*reserved*
15	*SMTIO0*	*reserved*
43	*VREF*	*reserved*

Connector J16 (J1) changed from 16-pin STMM-108-02-G-D-SM to 20-pin STMM-110-02-T-D. Pinout changed as follows:

Name	From	To
/TRST	*1*	*2*
TMS	*2*	*3*
GND	*3*	*4*
TDI	*4*	*7*
TCLK	*5*	*5*
VDDX	*6*	*14*
GND	*7*	*6*
TDO	*8*	*9*
/FEW	*9*	
FRDY	*10*	
MISO	*11*	*15*
VCC	*12*	
SCK	*13*	*19*
MOSI	*14*	*17*
PRG	*15*	*13*
GND	*16*	*18*
/PM_RSTMCU		*1*
GND		*8*
GND		*10*
RTCK		*11*
JTAG_VREF		*12*
/DE		*16*
GND		*20*

4.2.2 Revision 3

Initial release

SD/MMC supported.

Pull-up resistor value on /SD_CD signal, J7 (J2) pin 10, changed from 47kΩ to 4.7kΩ.

4.2.3 Revision A

Production release

Available Q4 2007

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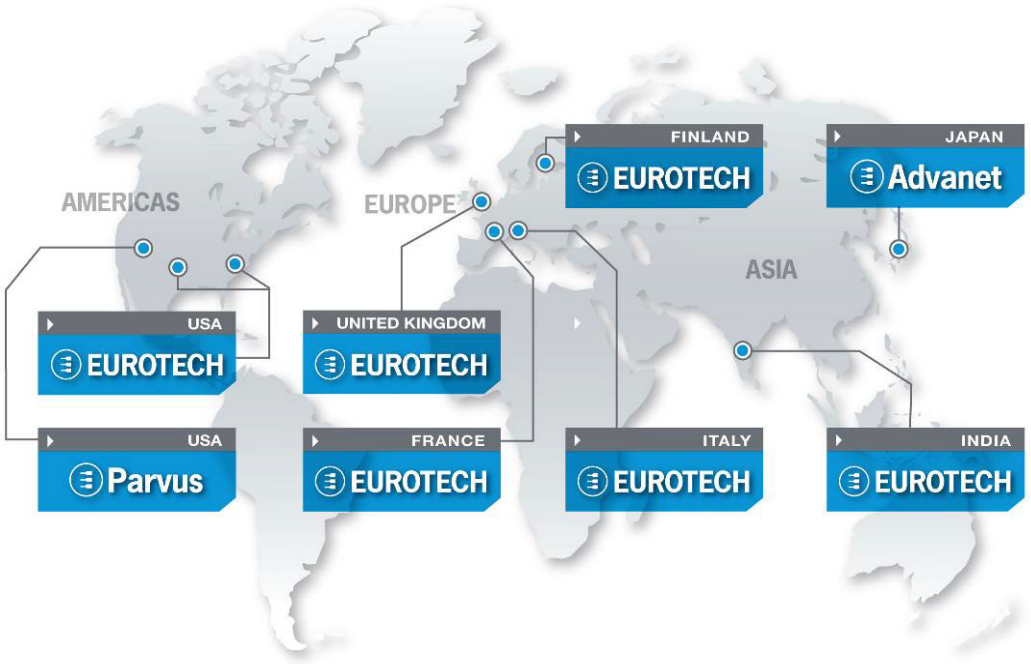

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