

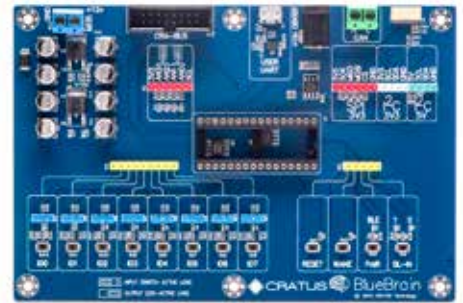
FUJITSU Component Sensor-Based System BlueBrain® Development Breakout Board

Overview

The BlueBrain Development Breakout Board provides a hardware development tool for users to prototype a BlueBrain Sensor-Based System and develop their application. The Breakout Board provides switch inputs and LED outputs to test I/O ports and functions, as well as programming interfaces.

The BlueBrain Interface Board, which provides additional sensors and interfaces, may also be used in parallel to expand your development toolkit.

BlueBrain is designed and developed in partnership with CRATUS Technology. www.cratus.tech.com



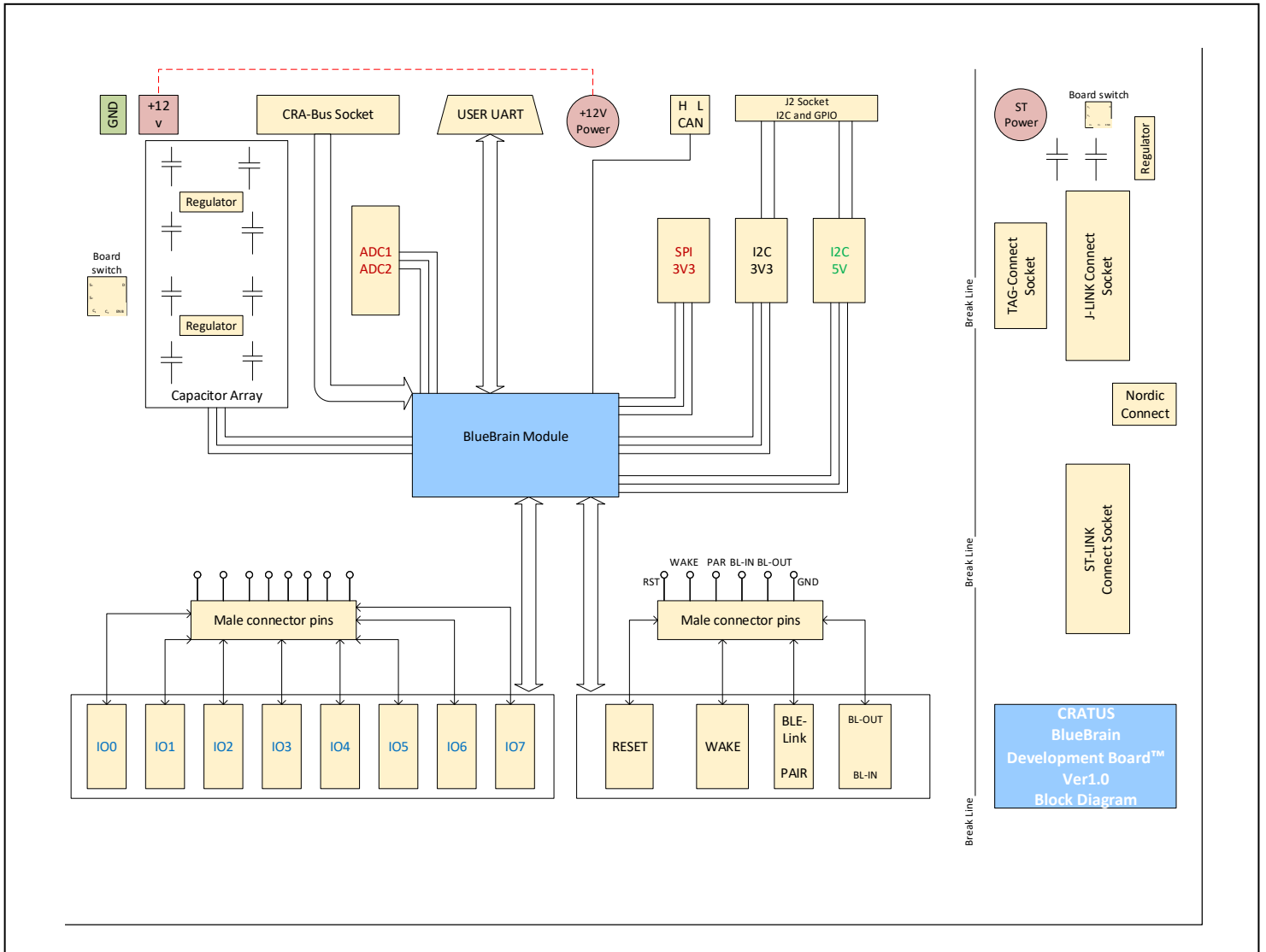
Features

- BlueBrain Socket: EEPROM Style 32-Pin 1.6" X 0.7" DIP Socket for BlueBrain Subsystem (1)
- 8 I/O Buttons and LEDs for user interaction (jumpers to switch between Buttons and LEDs)
- 4 Buttons to interact with BLE module MBH7BLZ07
- 4 ADC inputs
- USB Input to a USB to UART Converter
- 3.3V or 5V I2C Interface
- Master SPI Interface Pins (CSB, SCLK, MOSI, MISO)
- User USART Interface
- CAN PHY
- 12V barrel jack or 5V USB power

■ Part Number

Part number	Dimensions (mm)	Operating temperature	Power supply
MBH-CRBBRD-V2	180 x 90	-20 to +50°C	12 VDC

■ Block Diagram



■ Hardware Details

Absolute Maximum Ratings

Maximum Input Voltage	3.6V
Typical Operating Voltage	3.3V
Minimum Operating Voltage	2.7V

Electrical Specifications

- General Specifications
- Maximum Input Voltage: 3.6V

Processor	STM32F415RGT6 ARM CORTEX-M4
Memory	1MB Flash , 192K X 8
Converter	2 X 12 Bit D/A, 3 X 12 Bit A/D

- MEMS Motion Sensor

# of Axis	3 Axis sensing
Programmable Acceleration Detection Range	+/-2g, +/-4g, +/-8g, +/-16g
Orientation Detection Resolution	1 Degree

- On-Board Temperature Sensor

Temperature Measurement Range	-40°C to +125°C
Accuracy	+/- 1.0°C (max.)
Resolution	14 bits
Interface	I2C up to 400KHz

- On-Board Flash Memory for Data Storage

128Mb Storage
100K program/erase cycles endurance
20 year data retention

- On-Board Secure EEPROM

16Kb Storage
Hardware write protection
1 Million program/erase cycles endurance
10 year data retention

- On-Board Indicators

1X RGB LED
1X GREEN LED
1X BLUE LED

- On-Board Interface

1X Switch	Reset
1X Switch	Bluetooth Smart Pairing
1X Switch	User

■ Electrical Characteristics & Recommended Operating Conditions

Parameter	Minimum	Maximum	Notes
BLUEBRAIN INTERFACE CHARACTERISTICS			
SPI INTERFACE			
Fsck	-	42MHz	Master Mode, SPI1, 2.7V<VDD<3.6V
1/tc(SCK)	-	21MHz	-
Data input setup time	6.5ns	-	Master mode
Data input hold time	2.5ns	-	Master mode
Data output valid time	-	2.5ns	Master mode (after enable edge), SPI1, 2.7V<VDD<3.6V
Data output hold time	0ns	-	Master mode (after edge enable)
I2C INTERFACE			
Main clock output	256 x 8K	256xFs ⁽¹⁾	⁽¹⁾ Sampling frequency
Clock frequency	-	64XFs	Master data: 32bits
WS valid time	0ns	6ns	Master mode
WS hold time	0ns	-	Master mode
Data input setup time	7.5ns	-	Master receiver
Data input hold time	0ns	-	Master receiver
Data output valid time	-	20ns	Master transmitter (after enable edge)
Data output hold time	2.5ns	-	Master transmitter (after enable edge)
ANALOG DIGITAL INPUTS (ADC)			
Conversion time (including sampling time)	0.50us	16.40us	f _{ADC} =30MHz, 12 bit resolution
Sampling rate (f _{ADC} =30MHz, at ts=3ADC cycles)		2MSPS	12 Bit single ADC

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