

HARDWARE
REFERENCE



[THE BLAZINGCORE SERIES]

WITH SUPERIOR NUMBER CRUNCHING ABILITIES AND PERIPHERAL HANDLING ON OUR CUSTOM EMBEDDED OS,
RAPID PROTOTYPING IS NOW EASY... AND BLAZING FAST.

INTRODUCTION

The BlazingCore(BC) Family Series is a 32-bit hardware and software series, comprising of an entire range of boards built around the PIC32MX chip by Microchip; all running on the BCore Operating System. The Sonata IDE provides the programming platform for writing programs in VBasic-minor (VBm), a subset of Microsoft®'s VB.NET syntax language, with built-in BCore OS commands to control devices and supports most standard protocols eg.(UART,SPI, ...), as well as built-in libraries for the C3038 Camera Module, and 2.83" Touch Screen OLED Displays, etc.

TECHNICAL OVERVIEW

BLAZINGCORE (BC)

Core	BCore100			
Chip	PIC32MX695F512L			
Operating System	BlazingCore			
Input Voltage	6 - 9 V			
Operating Voltage	3.3V			
I/O Sink/Source Current	18mA Max Rating: 25mA			
Range	32bit			
Pins	100			
Speed	1 - 5 Million Lines of Code per second			
Physical I/O Pins	59			
User Memory	110K			
External Memory	Data Flash	MMC	SSRAM	SRAM
Interrupt Pins	3			
UART	4			
ADC Pins	16			
ADC Resolution	10bit			
SPI	1			
I2C	1			
PWM Channels	5			

FEATURES

High performance 32-bit RISC CPU

- Based on Microchip's PIC32MX Chip
- MIPS32® Architecture
- BlazingCore™ OS Onboard
- External BCore Memory Support for Serial Data Flash Memory Chip, MMC (SD – Compatible), Serial SRAM, SRAM
- Up to 5 Million Lines of Instructions per Second
- 80MHz Clock Speed

Microcontroller features (BCore100)

- 3.3V Low Power Consumption
- 110K Onboard SRAM Memory
- Up to 16MB External Data Flash Memory

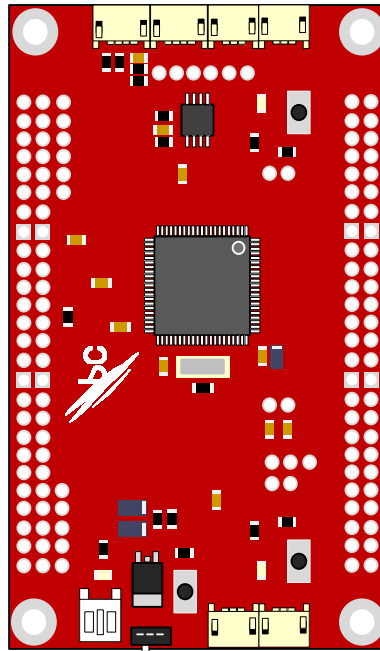
Note: External Memory Card Support for MMC (SD Compatible) (up to 16Gb).

Peripheral Features

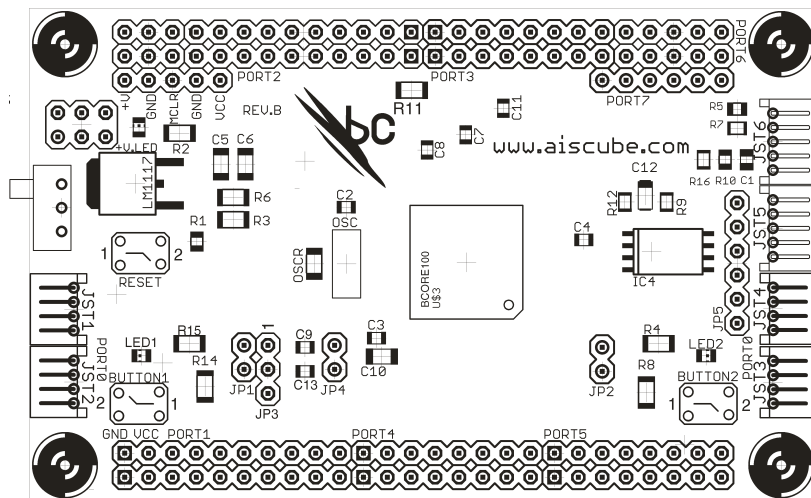
- 59 Physical I/O Pins
- High Current Sink/Source 18mA/18mA on all I/O pins
- Up to 4 UART Modules
- 5 PWM Channels
- 1 SPI
- 1 I2C
- High Speed I/O Pins
- 5V Tolerant Input Pins (Digital Only)

Analog Features

- 16 Channel 10-bit Resolution Analog-to-Digital Converter
 - 1Msps conversion rate

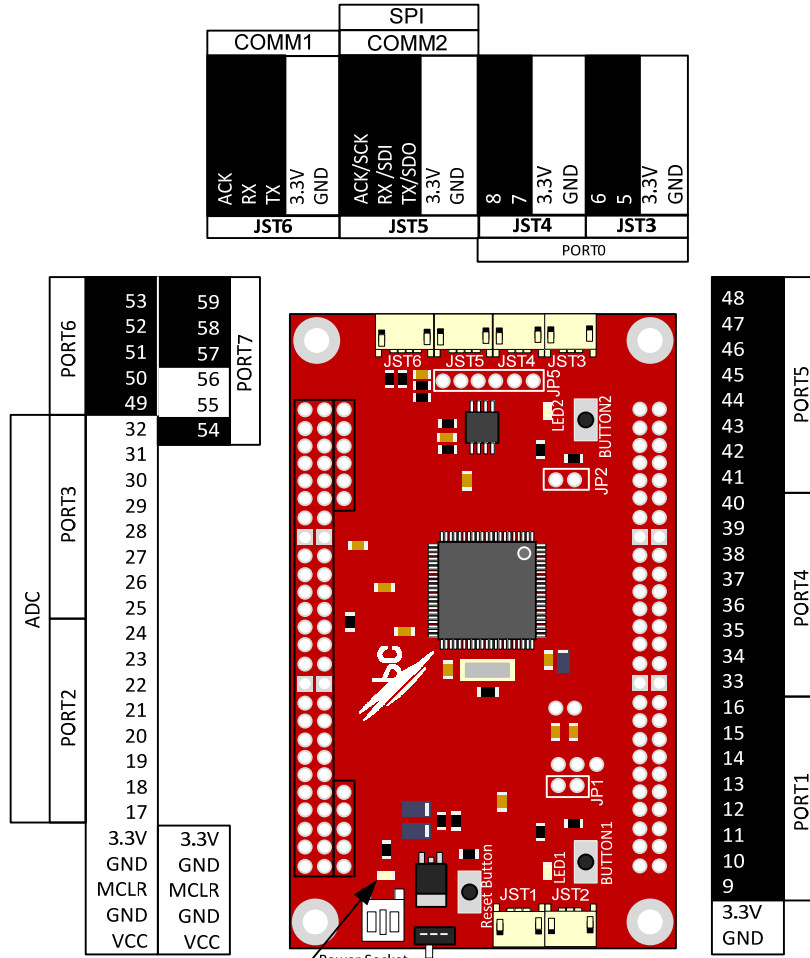


BCore100



BCORE100(REV.B) PINOUT

5V Tolerant Pins



COMM1		COMM2		SPI	
ACK	RX	ACK/SCK	RX/SDI	8	7
TX	3.3V	TX/SDO	3.3V	3.3V	GND
GND		GND		JST4	JST3
PORT0					

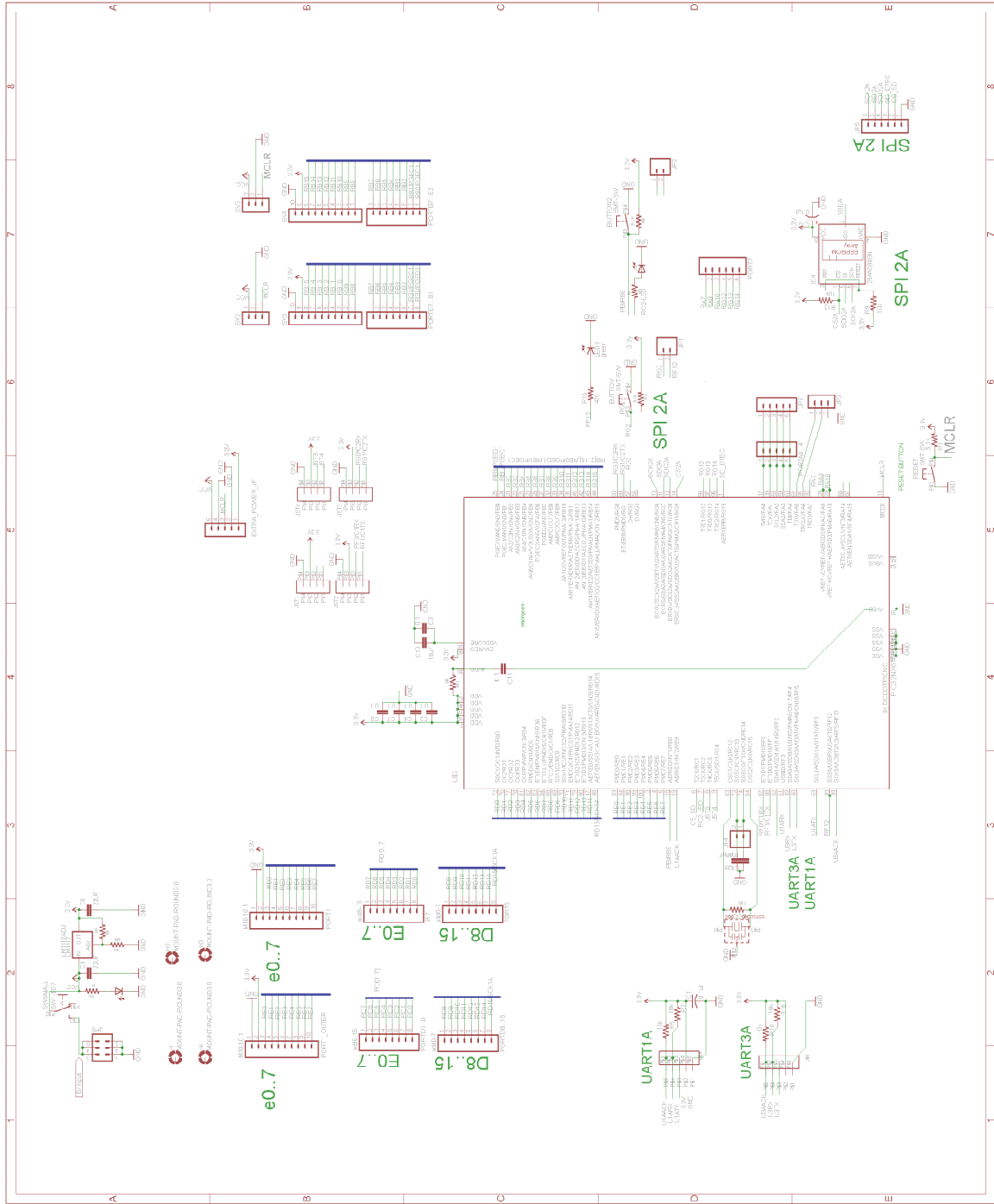
PORT6		53	59
PORT3		52	58
PORT2		51	57
ADC		50	56
		49	55
		32	54
		31	
		30	
		29	
		28	
		27	
		26	
		25	
		24	
		23	
		22	
		21	
		20	
		19	
		18	
		17	
		3.3V	3.3V
		GND	GND
		MCLR	MCLR
		GND	GND
		VCC	VCC

PORT5		48
		47
		46
		45
		44
		43
		42
		41
		40
		39
		38
		37
		36
		35
		34
		33
		16
		15
		14
		13
		12
		11
		10
		9
		3.3V
		GND

Power Indicator

PORT0		GND	1
		3.3V	2
		GND	3
		3.3V	4
		JST1	JST2
LED1	PB1	SPI (RESERVED)	
LED2	PB2	SCK	
		SDI	
		SDO	
		SD_DTEC	
		CS_SD	
		GND	
JP1	JP2	JP5	

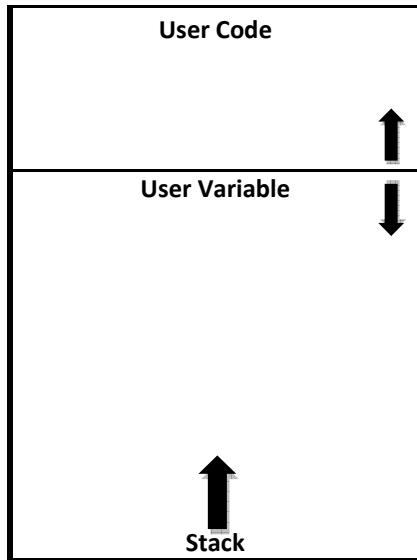
SCHEMATIC



MEMORY MANAGEMENT

ONBOARD MEMORY

SRAM – 110K



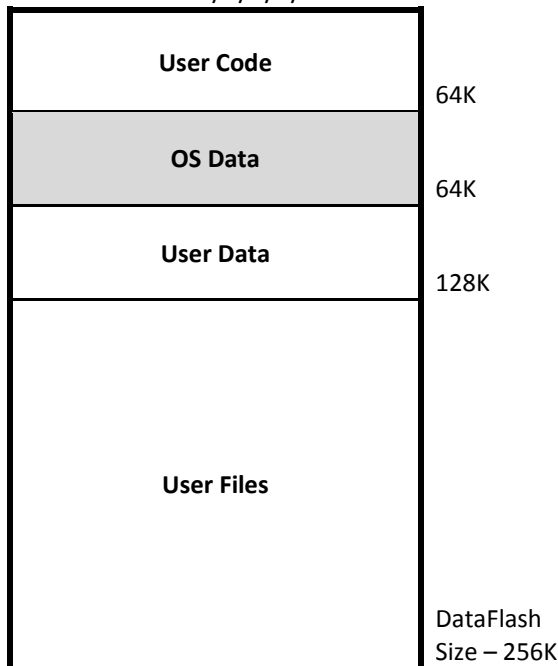
There is a total of 110K of SRAM Memory for User Code, User Variable and the Program Stack. The amount of memory allocated for the code and variable is user defined.

Users are able to define the amount of memory to allocate for code and data within the IDE using the configurations page.

The Program Stack grows and shrinks during program run time as variables are declared, assigned and disposed.

EXTERNAL MEMORY – BCore100

DataFlash Size – 1/2/4/8/16MB



The BCore100 uses a DataFlash chip for its external memory. BCore Programs are stored here.

DataFlash Memory size supported are 1/2/4/8/16MB.

BCore allocates fixed regions within the DataFlash as illustrated on the left;

- 64K each for User Code and OS Data;
- 128K for User Data;
- And the remaining memory (DataFlash Size – 256K) for User Files(.bmp/.wav/.txt Files)

Note: By default, BCore100 Boards ship with 1MB of external memory on the dataflash chip.

I/O PINOUT DESCRIPTION

Pins		BCore100 (REV.B)		
1	GIO	INT (PIN1)	JST1	PORT0
2	GIO	INT (PIN2)		
3	GIO	I2C (SCL)	JST2	
4	GIO	I2C (SDA)		
5	GIO		JST3	
6	GIO			
7	GIO		JST4	
8	GIO			
9	GIO		PORT1	
10	GIO			
11	GIO			
12	GIO			
13	GIO			
14	GIO			
15	GIO			
16	GIO			
17	GIO	ADC	PORT2	
18	GIO	ADC		
19	GIO	ADC		
20	GIO	ADC		
21	GIO	ADC		
22	GIO	ADC		
23	GIO	ADC		
24	GIO	ADC		
25	GIO	ADC	PORT3	
26	GIO	ADC		
27	GIO	ADC		
28	GIO	ADC		
29	GIO	ADC		
30	GIO	ADC		
31	GIO	ADC		
32	GIO	ADC		
33	GIO		PORT4	
34	GIO			
35	GIO			
36	GIO	PWM (5)		
37	GIO	PWM (4)		
38	GIO	PWM (3)		
39	GIO	PWM (2)		
40	GIO	PWM (1)		
41	GIO		PORT5	
42	GIO			
43	GIO			
44	GIO			
45	GIO			
46	GIO			
47	GIO	COMM4 (RX)		
48	GIO	COMM4 (TX)		

49	GIO		PORT6
50	GIO		
51	GIO		
52	GIO		
53	GIO		PORT7
54	GIO		
55	GIO	COMM3 (TX)	
56	GIO	COMM3 (RX)	
57	GIO		
58	GIO		
59	GIO		
OS	LED1		
OS	PB1		
OS	LED2		
OS	PB2		

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