

ABACUS_2014 OBC Pinout (rev.2)

PC104 pin	suggested config.	uC MSP430
H1 1	GND	
H1 3	UART1_TXD/GPIO	P5.6
H1 5	UART1_RXD/GPIO	P5.7
H1 7	SPI_SDM1 **	P5.4 **
H1 9	SPI_SCK **	P5.5 **
H1 11	SPI_SIMO **	P3.7 **
H1 13	GPIO	P2.2
H1 15	GPIO	P11.1
H1 17	NC	
H1 19	GPIO	P10.0
H1 21	NC	
H1 23	NC	
H1 25	ADC11/GPIO	P7.7
H1 27	ADC9/GPIO	P7.5
H1 29	ADC7/GPIO	P6.7
H1 31	ADC5/GPIO	P6.5
H1 33	ADC3/GPIO	P6.3
H1 35	CTS/GPIO	P3.3
H1 37	DSR/GPIO	P3.0
H1 39	UART3_TXD/GPIO	P10.4
H1 41	I2C_SDA2 3.3V *	P10.1 *
H1 43	I2C_SCK2 3.3V *	P10.2 *
H1 45	NC	
H1 47	NC	
H1 49	NC	
H1 51	NC	

* Have to be used as I2C port

** Have to be used as SPI port

PC104 pin	suggested config.	uC MSP430
H1 2	GND	
H1 4	UART2_TXD/GPIO *	P9.4 *
H1 6	UART2_RXD/GPIO *	P9.5 *
H1 8	GPIO	P2.0
H1 10	GPIO	P7.0
H1 12	SPI_CS/GPIO	P3.6
H1 14	ADC10/GPIO	P7.6
H1 16	ADC8/GPIO	P7.8
H1 18	ADC6/GPIO	P6.6
H1 20	ADC4/GPIO	P6.4
H1 22	ADC2/GPIO	P6.2
H1 24	NC	
H1 26	NC	NC
H1 28	VREF+/VREF-/GPIO	P5.0
H1 30	VREF-/GPIO	P5.1
H1 32	NC	
H1 34	GPIO	P11.2
H1 36	RTS/GPIO	P2.7
H1 38	DIR/GPIO	P2.6
H1 40	UART3_RXD/GPIO	P10.5
H1 42	NC	
H1 44	NC	
H1 46	NC	
H1 48	NC	
H1 50	NC	
H1 52	NC	

* same connection are also reported on external P2 connector, UART2_RXD pin 1, UART2_TXD pin 2, GND pin 3

PC104 pin	fixed conf.
H2 1	GPIO EXP1 *
H2 3	GPIO EXP3 *
H2 5	GPIO EXP5 *
H2 7	GPIO EXP7 *
H2 9	GPIO EXP9 *
H2 11	GPIO EXP11 *
H2 13	GPIO EXP13 *
H2 15	GPIO EXP15 *
H2 17	GPIO EXP PWR IN **
H2 19	3.3V REG PWR OUT
H2 21	NC
H2 23	NC
H2 25	VIN SYS (+5V)
H2 27	NC
H2 29	GND
H2 31	NC
H2 33	NC
H2 35	NC
H2 37	NC
H2 39	NC
H2 41	NC
H2 43	NC
H2 45	NC
H2 47	NC
H2 49	NC
H2 51	NC

* I2C to 16 GPIO expander

** external source of pwr (1,8V - 5V) for GPIO EXP pins (optional or NC)

PC104 pin	fixed conf.
H2 2	GPIO EXP0 *
H2 4	GPIO EXP2 *
H2 6	GPIO EXP4 *
H2 8	GPIO EXP6 *
H2 10	GPIO EXP8 *
H2 12	GPIO EXP10 *
H2 14	GPIO EXP12 *
H2 16	GPIO EXP14 *
H2 18	GND
H2 20	GND
H2 22	NC
H2 24	NC
H2 26	VIN SYS (+5V)
H2 28	NC
H2 30	GND
H2 32	GND
H2 34	NC
H2 36	NC
H2 38	NC
H2 40	NC
H2 42	NC
H2 44	NC
H2 46	NC
H2 48	NC
H2 50	NC
H2 52	NC

* I2C to 16 GPIO expander

P1 conn.	fixed conf.	NOTE
1	is connected to FPGA	FPGA pin 78
2	GND	
3	is connected to FPGA	FPGA pin 77
4	UART0_RXD *	uC P3.5
5	I2C_1 pwr shift input	
6	UART0_TXD *	uC P3.4
7	GND	
8	GND	
9	I2C_SDA1 pwr shifted	
10	RS422/485 OUT+ *	
11	I2C_SCK1 pwr shifted	
12	RS422/485 OUT- **	
13	I2C_SDA1 3.3V **	uC P3.1 **
14	RS422/485 IN- *	
15	I2C_SCK1 3.3V **	uC P3.2 **
16	RS422/485 IN+ *	

* An UART0 RS232 to RS422/485 adapter is used, UART0 and RS422/485 ports cannot be used together

** Have to be used as I2C port

JTAG1	uC MSP430 programmer
JTAG2	FPGA Spartan3E programmer

P7 & IP *	FPGA Spartan3E pin
P7 1	106
P7 2	107
P7 3	108
P7 4	109
P7 5	112
P7 6	113
P7 7	115
P7 8	116
P7 9	119
P7 10	120
P7 11	122
P7 12	123
P7 13	126
P7 14	127
P7 15	128
P7 16	129
P7 17	132
P7 18	133
P7 19	134
P7 20	135
P7 21	137
P7 22	138
P7 23	139
P7 24	140
P7 25	144
P7 26	145
P7 27	146
P7 28	147
P7 29	150
P7 30	151
P7 31	152
P7 32	153
P7 33	GND
P7 34	GND
IP 1 *	154
IP 2 *	148
IP 3 *	142
IP 4 *	136
IP 5 *	110
IP 6 *	118
IP 7 *	124
IP 8 *	130

* IP is an only input connector