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IDE: Atmel Studio

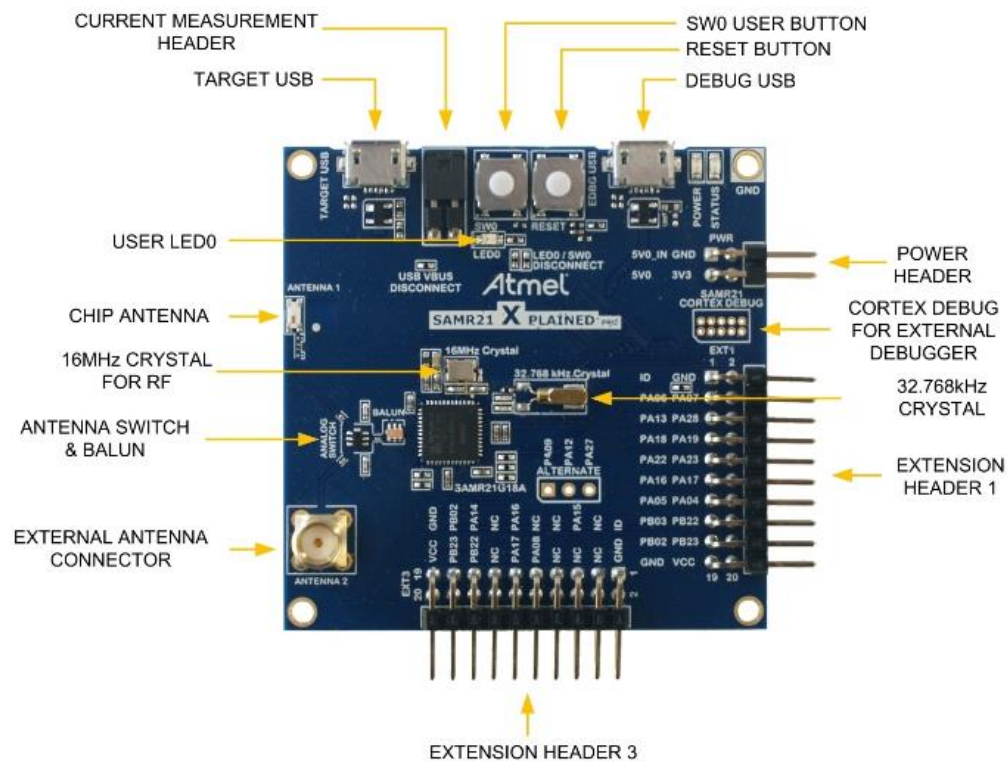
Link: <https://www.microchip.com/mplab/avr-support/atmel-studio-7>

Downlaoding

LED0 = PA19

Xplained Pro Standard Extension Header

Pin number	1st function	2nd function	Description
1	ID		Communication line to the ID chip on an extension board
2	GND		Ground
3	ADC (+)		Analog to digital converter
4	ADC (-)		Analog to digital converter
5	GPIO 1		General Purpose I/O
6	GPIO 2		General Purpose I/O
7	PWM (+)		Pulse width modulation
8	PWM (-)		Pulse width modulation
9	IRQ	GPIO	Interrupt request line and/or general Purpose I/O
10	SPI SS B	GPIO	Slave select for SPI and/or general Purpose I/O
11	I <sup>2</sup> C SDA		Data line for I <sup>2</sup> C
12	I <sup>2</sup> C SCL		Clock line for I <sup>2</sup> C
13	UART RX		Receiver line of target device UART
14	UART TX		Transmitter line of target device UART
15	SPI SS A		Save select for SPI
16	SPI MOSI		Master out slave in line of SPI
17	SPI MISO		Master in slave out line of SPI
18	SPI SCK		Clock for SPI
19	GND		Ground
20	VCC		Power for extension board



### Xplained Pro Power Header

Pin number	Function	Description
1	VEXT P5V0	External 5V input
2	GND	Ground
3	VCC P5V0	Unregulated 5V
4	VCC P3V3	Regulated 5V

### Extension Header EXT1:

Pin on EXT1	SAM R21 pin	Function	Shared functionality
1 [ID]		ID	
2 [GND]		GND	
3 [ADC (+)]	PA06	AIN [6]	
4 [ADC (-)]	PA07	AIN [7]	
5 [GPIO 1]	PA13	GPIO	
6 [GPIO 2]	PA28	GPIO	
7 [PWM (+)]	PA18	TCC0 / WO [2]	
8 [PWM (-)]	PA19	TCC0 / WO [3]	
9 [IRQ / GPIO]	PA22	EXTINT [6]	
10 [SPI SS B / GPIO]	PA23	GPIO	
11 [I <sup>2</sup> C SDA]	PA16	SERCOM1 PAD [0] I <sup>2</sup> C SDA	EXT3 and EDBG
12 [I <sup>2</sup> C SCL]	PA17	SERCOM1 PAD [1] I <sup>2</sup> C SCL	EXT3 and EDBG
13 [UART RX]	PA05	SERCOM0 PAD [1] UART RX	EDBG

14 [UART TX]	PA04	SERCOM0 PAD [0] UART TX	EDBG
15 [SPI SS A]	PB03	SERCOM5 PAD [1] SPI SS	
16 [SPI MOSI]	PB22	SERCOM5 PAD [2] SPI MOSI	EXT3 and EDBG
17 [SPI MISO]	PB02	SERCOM5 PAD [0] SPI MISO	EXT3 and EDBG
18 [SPI SCK]	PB23	SERCOM5 PAD [3] SPI SCK	EXT3 and EDBG
19 [GND]		GND	
20 [VCC]		VCC	

#### Extension Header EXT3:

Pin on EXT1	SAM R21 pin	Function	Shared functionality
1 [ID]		ID	
2 [GND]		GND	
3 [ADC (+)]			
4 [ADC (-)]			
5 [GPIO 1]	PA15	GPIO	
6 [GPIO 2]			
7 [PWM (+)]			
8 [PWM (-)]			
9 [IRQ / GPIO]			
10 [SPI SS B / GPIO]	PA08	GPIO	EDBG
11 [I <sup>2</sup> C SDA]	PA16	SERCOM1 PAD [0] I <sup>2</sup> C SDA	EXT1 and EDBG
12 [I <sup>2</sup> C SCL]	PA17	SERCOM1 PAD [1] I <sup>2</sup> C SCL	EXT1 and EDBG
13 [UART RX]			
14 [UART TX]			
15 [SPI SS A]	PA14	GPIO	EDBG
16 [SPI MOSI]	PB22	SERCOM5 PAD [2] SPI MOSI	EXT1 and EDBG
17 [SPI MISO]	PB02	SERCOM5 PAD [0] SPI MISO	EXT1 and EDBG
18 [SPI SCK]	PB23	SERCOM5 PAD [3] SPI SCK	EXT1 and EDBG
19 [GND]		GND	
20 [VCC]		VCC	

#### Alternate Signals Header:

Pin on header	PIN on SAM R21	Function	Function
1	PA09	RFCTRL1, negative antenna switch control signal	
2	PA12	RFCTRL2, positive antenna switch control signal	
3	PA27	GPIO, chip select on EDBG DGI SPI bus	

#### Cortex Debug Connector

Pin on connector	Connected	Function
1	VCC Target	Voltage reference
2	PA31 SWDIO	Debug data
3	GND	GND
4	PA30 SWCLK	Debug clock
5	GND	GND
6	NC	
7	NC	
8	NC	

9	GND	GND detect
10	RESETN	Target reset

## Peripherals

### External 32.768kHz Crystal

Pin on SAM R21	Function
PA00	XIN32
PA01	XOUT32

### External 16kHz Crystal

Pin on SAM R21	Function
XTAL1	XIN
XTAL2	XOUT

### Buttons

Pin on SAM R21	Silkscreen text
RESETN	RESET
PA28	SW0

### LED

Pin on SAM R21	LED
PA19	Yellow LED0

### USB Connections

Pin on SAM R21	USB
PA07	VBUS Detection
PA24	USB D-
PA25	USB D+

### RF Connections

Pin on SAM R21	RF	Shared functionality
RFP	RF balanced output (positive)	
PFN	RF balanced output (negative)	
PA09 / RFCTRL1	RF switch control signal (negative)	EDBG
PA12 / RFCTRL2	RF switch control signal (positive)	EDBG