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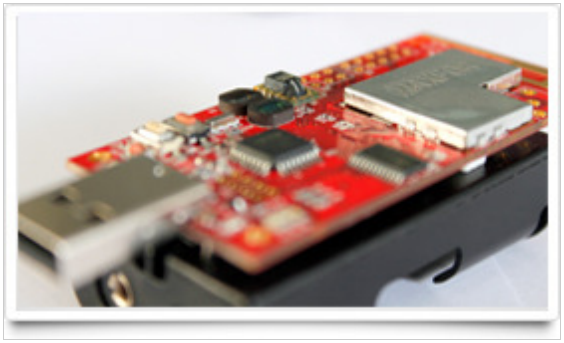
XM1000

From Advantic System

The **XM1000** is the new generation of mote modules, based on "TelosB" technical specifications, with upgraded 116Kb-EEPROM and 8Kb-RAM and integrated Temperature, Humidity and Light sensors. The mote has the following general characteristics:

- IEEE 802.15.4 (http://en.wikipedia.org/wiki/IEEE_802.15.4) WSN platform
- TI MSP430F2618 Microcontroller
- TI CC2420 Radio Transceiver
- TinyOS 2.x and ContikiOS Compatible
- Temperature, Humidity, Light sensors
- User & Reset Buttons
- 3xLeds
- USB Interface
- 2xAA Battery Holder



XM1000

Type: Mote (http://en.wikipedia.org/wiki/Motes)

As with the original CM5000, this product is specially suitable not only as cots environmental wireless sensor node, but also as a very useful research platform for developers, as it includes in the same hardware module all the needed functionalities: sensor readings, processor power and wireless communication potential. The 116Kb-EEPROM and 8Kb-RAM makes it ideal for complex applications that require additional memory such as OTAP reprogramming or micro dpws implementation.

Warning: To avoid damage to this device, make sure to remove batteries before plugging it to the host computer's USB port.

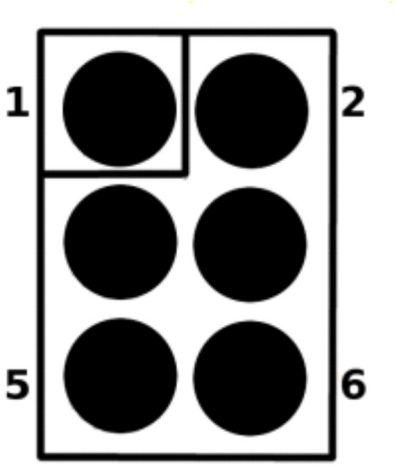
Features

Item	Specification	Description
Processor		
Processor Model	TI MSP430F2618	Texas Instruments MSP430 family
Memory	116KB	Program flash
	8KB	Data RAM
	1MB	External Flash (ST® M25P80)

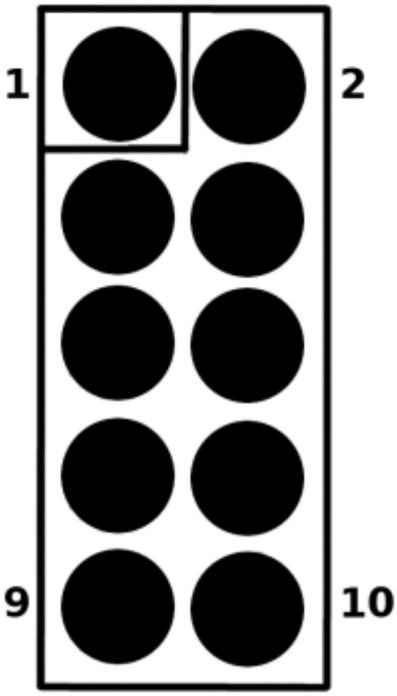
ADC	12bit resolution	8 channels
Interfaces	UART, SPI, I2C USB	Serial Interfaces External System Interface (FTI® FT232BM)
Radio		
RF Chip	TI CC2420	IEEE 802.15.4 2.4GHz Wireless Module
Frequency Band	2.4GHz ~ 2.485GHz	IEEE 802.15.4 (http://en.wikipedia.org/wiki/IEEE_802.15.4) compliant
Sensitivity	-95dBm typ	Receive Sensitivity
Transfer Rate	250Kbps	IEEE 802.15.4 (http://en.wikipedia.org/wiki/IEEE_802.15.4) compliant
RF Power	-25dBm ~ 0dBm	Software Configurable
Range	~120m(outdoor), 20~30m(indoor)	Longer ranges possible with optional SMA antenna attached
Current Draw	RX: 18.8mA TX: 17.4mA Sleep mode: 1uA	Lower RF Power Modes reduce consumption
RF Power Supply	2.1V ~ 3.6V	CC2420 Input Power
Antenna	Dipole Antenna / PCB Antenna	Additional SMA connector available for extra antenna
Sensors		
Light 1	Hamamatsu® S1087	Visible Range (560 nm peak sensitivity wavelength)
Light 2	Hamamatsu® S1087-01	Visible & Infrared Range (960 nm peak sensitivity wavelength)
Temperature & Humidity	Sensirion® SHT11	Temperature Range: -40 ~ 123.8 ºC Temperature Resolution: : ± 0.01(typical) Temperature Accuracy: ± 0.4 ºC (typical) Humidity Range: 0 ~ 100% RH Humidity Resolution: 0.05 (typical) Humidity Accuracy: ± 3 %RH (typical)
Electromechanical Characteristics		
Dimensions	81.90mm x 32.50mm x 6.55mm	Including USB connector
Weight	17.7g	Without batteries
Power	3V (2xAA Battery Holder Provided)	MICREL® MIC5207 Power Regulator

Expansion Connector

The XM1000 includes an expansion connector, that allows the access to a number of pins in the microcontroller.



1. DAC0
2. SVSin
3. GIO2
4. GIO3/SVSout
5. UserINT
6. RESET



1. DVCC
2. UART0RX
3. ADC0
4. UART0TX
5. ADC1
6. I2C_SCL
7. ADC2/GIO1
8. I2C_SDA
9. GND
10. ADC3/GIO0

Resources

- TinyOS® Code Examples
- XM1000 TinyOS® Platform Installation (http://www.advanticsys.com/shop/documents/1331215249_XM1000v6.zip)
- XM1000 ContikiOS® Platform files (http://www.advanticsys.com/shop/documents/1347278134_contiki-xm1000-v2012-08-29.rar)