MICA2DOT

WIRELESS MICROSENSOR MOTE

- 3rd Generation, Quarter-Sized (25mm), Wireless Platform for Smart Sensors
- Designed Specifically for Deeply Embedded Wireless Sensor Networks
- Battery-Powered, Low-Mass
- Fits Anywhere, Wireless Reprogrammable
- Wireless Communications with Every Node as Router Capability
- 868/916 MHz, 433 MHz or 315 MHz Multi-channel Radio Transceiver (MICA2 Compatible)

Applications

- Wireless Sensor Networks
- Temperature and Environmental Monitoring
- Remote Data Logging
- Smart Badges, Wearable Computing
- Active 2-Way “Smart” Tags

The MICA2DOT Mote is a third generation mote module used for enabling low-power, wireless sensor networks. The MICA2DOT is similar to the MICA2, except for its quarter-sized (25mm) form factor and reduced input/output channels. The following features make the MICA2DOT better suited for commercial deployment:

- 868/916MHz, 433MHz or 315MHz multi-channel transceiver with extended range
- TinyOS (TOS) Distributed Software Operating System v1.0 with improved networking stack and improved debugging features
- Support for wireless remote reprogramming
- Compatible with MICA2 (MPR4x0) Mote
- On Board Temperature Sensor, Battery Monitor, and LED

TinyOS 1.0 is a small, open-source, energy efficient, software operating system developed by UC Berkeley which supports large scale, self-configuring sensor networks. The source code and software development tools are publicly available at:

http://webs.cs.berkeley.edu/tos

Processor and Radio Platform (MPR500CA):
The MPR500CA is based on the Atmel ATmega128L. The ATmega128L is a low-power microcontroller which runs TOS from its internal flash memory. Using TOS, a single processor board (MPR500CA) can be configured to run your sensor application/processing and the network/radio communications stack simultaneously. The MICA2DOT features 18 solderless expansion pins for connecting 6 Analog Inputs, Digital I/O, and a serial communication or UART interface. These interfaces make it easy to connect to a wide variety of external peripherals.

Sensor Boards:
Crossbow offers a growing family of compatible sensor and data acquisition boards for the MICA2DOT. These Boards are connected to the MICA2DOT via a ring of 18 solderless expansion pins. These pins allow boards to be stacked both above and below the MICA2DOT Processor/Radio Board. Custom sensor and data acquisition boards are also available. Please contact Crossbow for additional information.
**Base Stations:**
The MICA2DOT communicates with base stations that use the MICA2 radio module. These include a standard MICA2 (MPR4x0) mated to a serial interface board (MIB510CA), as well as the MIB600CA for TCP/IP-based Ethernet networks.

**Packaging:**
The MICA2DOT is presently distributed as a stand-alone subassembly without packaging. In future, a small plastic housing will be available.

**Developers Kits:**
Crossbow offers a variety of development kits for the MICA2 and MICA2DOT Motes.

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**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>MOTE-KIT5040CC</td>
<td>Professional Developer’s Kit (4X MPR500CA, 4X MPR400CB, 3X MTS310CA, 2X MTS510CA, 2X MDA500CA, 1X MIB510CA)</td>
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<td>MOTE-KIT5141CC</td>
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<td>MOTE-KIT5242CD</td>
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<tr>
<td>MPR500CA</td>
<td>868/916 MHz Processor/Radio Board</td>
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<tr>
<td>MPR510CA</td>
<td>433 MHz Processor/Radio Board</td>
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<tr>
<td>MPR520CA</td>
<td>315 MHz Processor/radio Board</td>
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<tr>
<td>MTS510CA</td>
<td>Light, Acoustic, 2-Axis Accel Sensor Board</td>
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<tr>
<td>MDA500CA</td>
<td>MICA2DOT Prototype/Data Acquisition Board</td>
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<tr>
<td>MIB510CA</td>
<td>MICA, MICA2, MICA2DOT Mote Interface &amp; Programming Board</td>
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