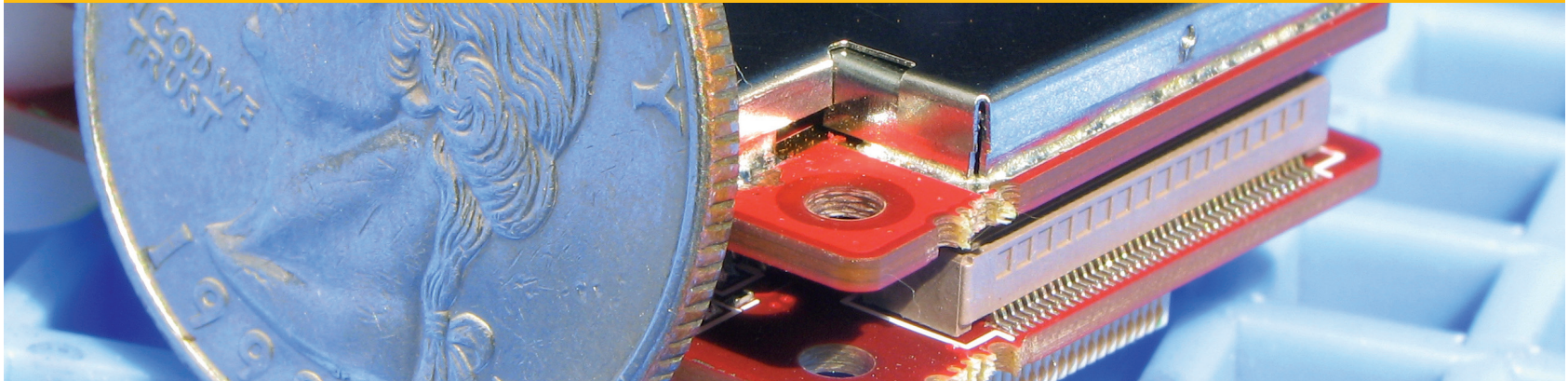


eWAVE: a step ahead.



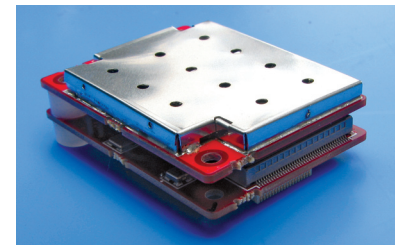
eWAVE Embedded WAVE module is a compact 5.9 GHz Dedicated Short Range Communications (DSRC) module designed to create portable and integrated on-board vehicle communication systems. Due to its versatility and size, the **eWAVE** module can be integrated into a communications vehicle and roadside equipment platforms and easy configuration with 3rd party applications. **eWAVE** brings integration of 5.9 GHz DSRC communications technology into everyday devices.

Build it with eWAVE.

The **eWave** module consists of two boards: the Radio board (top) and the Processor board (bottom) that stack on each other. The main interface connector to the host platform via the 36 pin Hirose connector (DF12-36DS, mating to DF12-36PS). The Processor board high-speed MIPS 24K based network processor controls the radio module and manages the network communication including the support for WAVE DSRC IPv6 protocols.

eWAVE offers a fully interoperable platform to support a wide range of current and future commercial, safety and mobility applications including:

- Vehicle on-board diagnostic and prognostic
- Vehicle Infrastructure Integration testing
- Vehicle safety and integrated communication systems
- Commercial vehicle applications
- ePayment systems



eWAVE Evaluation Kit.

The **eWAVE** Evaluation Kit is designed to jump start development with the **eWAVE** solution. The kit includes the software and utilities to develop communication applications. Optional connector board with built in USB 2.0, Ethernet RJ45 and DB9 serial connectors also are available.

eWAVE is compatible with the industry standard 802.11p and 1609 compliant solutions and supports transportation management, safety and security applications. **eWAVE** supports conventional WiFi communication applications using 802.11 a/b/g and public safety 5.9 GHz bands.

eWAVE offers an unprecedented value proposition to auto suppliers, truck original equipment makers and the tolling industry. It can be used for development of a test of various VII applications. It can be used to communicate 5.9GHz DSRC WiFi or 4.9 GHz or 5 GHz licensed spectrum bands.

Features.

- Fully integrated standard compliant 5.9 GHz DSRC module
- Complete kit for the evaluation of **eWAVE** Embedded Wireless Device Server Module or MCNU R1550
- Development tool for testing and debugging applications
- Multiple options for flexible I/O connectivity
- Monopole high-gain antenna included
- Evaluation and test development software kit available
- Full documentation and User's Guide
- Flexible interfaces to the host system: Ethernet, serial, USB
- Supports on-board and infrastructure communication nodes

pin	J3	pin#
GND	1	2
3.3V	3	4 3.3V
	5	6
Reset(active low)	7	8 1PPS GPS
	9	10
	11	12
Ethernet RX +	13	14 EthernetRX-
GND	15	16 GND
USB+	17	18
USB-	19	20 GND
GND	21	22
	23	24 Serial in Rx
	25	26 GND
GND	27	28 Serial out Tx
Ethernet TX-	29	30 EthernetTX+
Ethernet TX-	31	32 EthernetTX+
3.3V	33	34 3.3V
	35	36 GND

DF12-36DS

Processor Board Host Interface connector

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Technical Specification:

Radio modes:

- IEEE 802.11a/b/g/j/p PHY

Wireless modes:

- WAVE, Ad-hoc, Infrastructure

Radio data rates:

- 1, 2, 5.5, 11 Mbps
- 3, 4.5, 6, 9, 12, 18, 24, 27 Mbps
- 6, 9, 12, 18, 24, 36, 48, 54 Mbps

Radio frequencies:

- 2.400 – 2.484 GHz (ISM)
- 4.940 – 4.990 GHz (PS)
- 5.250 – 5.350 GHz (UNII)
- 5.470 – 5.725 GHz (UNII)
- 5.725 – 5.825 GHz (UNII)
- 5.825 – 5.850 GHz (ISM)
- 5.850 – 5.925 GHz (ITS-DSRC)

Channels:

- 172, 174, 176, 178, 180, 182, 184

RF Power output:

- 14 dBm maximum
- Class C spectral mask (p mode)

Receiver sensitivity:

- -91 dBm @ 6 Mbps (a/g mode typical)
- -88 dBm @ 6 Mbps (p mode typical)
- -97 dBm @ 6 Mbps (b mode typical)

Power Current consumption:

- 3.3 V, +/- 5%, 750 mA (Max)

Network processor:

- 32 bit MIPS 24K, 300MHz
- 8 MB Flash

Storage Memory:

- 32 MB SDRAM DDR

Size:

38 mm x 27 mm

Height:

11 mm (two board stacked)

Protocols:

- WAVE DSRC (802.11p, 1609.3, 1609.4)
- IPv6 (TCP and UDP)

Operating parameters:

- Temperature: -45C to +85C

Security:

- WEP64 and WEP128bit, WPA, 802.1x
- 1609.2 – optional

Antenna connectors:

- Two U.FL coaxial connectors (50 ohm)
- Support receiver diversity

On-board interface signals

On board interface connector
(Hirose 36 Pin DF12-36DS):

- USB 2.0
- Serial (UART)
- 10/100 Fast Ethernet
- GPS 1 PPS (3.0V TTL level)
- Power 3.3V

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