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# MultiConnect<sup>®</sup> OCG-E



## Open Communications Gateways - Embedded

The MultiConnect<sup>®</sup> OCG-E open communications gateways with CoreCDP<sup>™</sup> comprise an open Linux development environment and a fully certified hardware offering that includes multiple interfaces and internal peripherals in one application-ready end user solution. Applications that require device networking capability can now be embedded directly onto select MultiTech hardware, providing a flexible, quick and cost-effective way to bring your solution to market.

### Hardware

- 400 MHz ARM9<sup>™</sup> CPU
- 256MB NAND flash and 64MB SDRAM
- Carrier approved 2G or 3G cellular connectivity
- Non-cellular models available
- Optional dedicated GPS receiver
- 80-pin board-to-board connector
- Multiple interfaces available (serial, USB host and device, Ethernet and more)

### CoreCDP Software

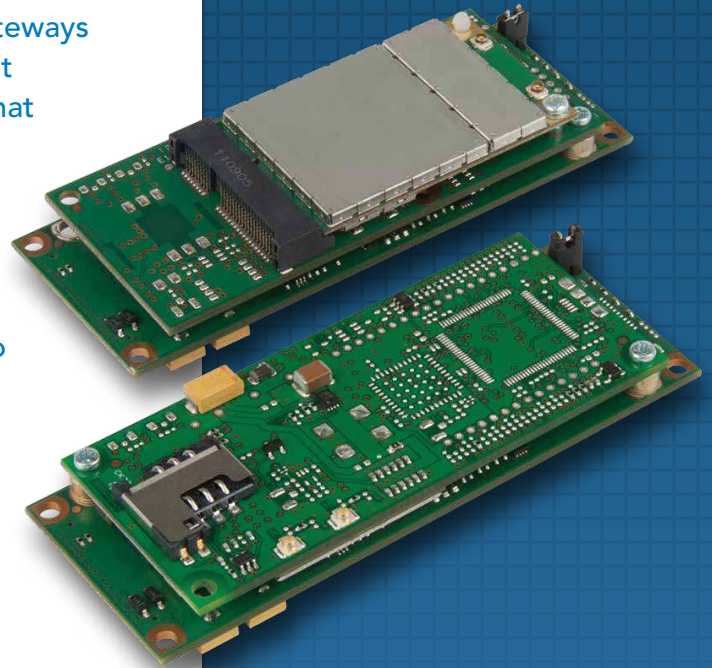
- Custom Linux distribution
- Provides complete Linux build environment
- Cross-compile thousands of open source software packages
- Create custom applications in a short period of time

### Developer Kit

- Customized development board for use with all models
- Includes all physical interfaces, cables, power supply and antennas necessary to develop your application
- Speeds hardware and software development

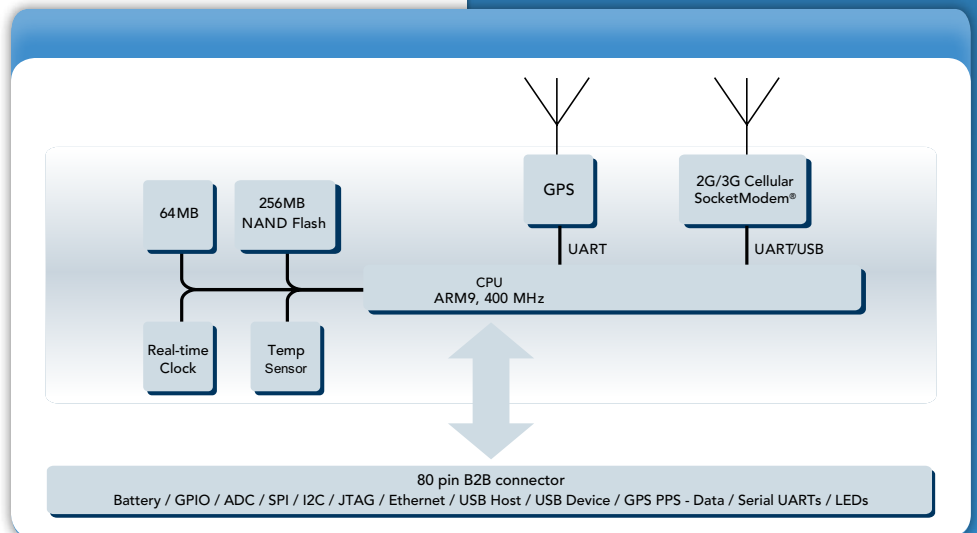
### Support

- Advanced developer support available
- Established developer community available at [www.multitech.net](http://www.multitech.net)
- Two-year warranty



### Benefits

- Linux-based open source software
- Proven hardware for the development and deployment of custom applications
- Cost-effective alternative to custom manufacturing
- Comprehensive service and developer support





## Specifications

Models	MT100EOCG-H5	MT100EOCG-EV2 MT100EOCG-EV3	MT100EOCG-G2
Performance	HSPA+	EV-DO Rev A	GPRS Class 10
Frequency Bands	3G: Hepta-band 850/900/ AWS 1700/1900/2100 MHz 2G: Quad-band 850/900/1800/1900 MHz	Dual-band 800/1900 MHz	Quad-band 850/900/1800/1900 MHz
<b>Environmental</b>			
Operating Temperature*	-22° to +185° F (-30° to +85° C)	EV2 Model: -31° to +185° F (-35° to +85° C) EV3 Model: -40° to +185° F (-40° to +85° C)	-31° to +185° F (-35° to +85° C)
Storage Temperature	-40° to +185° F (-40° to +85° C)		
Humidity	20% to 90% RH, noncondensing		
<b>Power Requirements</b>			
Input Power	5VDC		
Power Draw	See Developers Guide		
<b>Physical Description</b>			
Length	3.650 inches (9.27 cm)		
Width	1.375 inches (3.49 cm)		
Max Component Height Top	.489 inches (1.24 cm)		
Max Component Height Bottom	.122 inches (.310 cm)		
Weight	1.7 oz (48 g)		1.4 oz (39 g)
<b>Certifications</b>			
EMC Compliance	FCC Part 15 Class B, EN 55022, EN 55024	FCC Part 15 Class B	FCC Part 15 Class B, EN 55022, EN 55024
Radio Compliance	FCC Part 22, 24, RSS 132, 133, EN 301 489-1, EN 301 489-7, EN 301 489-24, EN 301 511	FCC Part 22, 24	FCC Part 22, 24, RSS 132, 133, EN 301 489-1, EN 301 489-7, EN 301 489-24, EN 301 511
Safety	UL 60950-1, cUL 60950-1, IEC 60950-1, A-Tick	UL 60950-1, cUL 60950-1, IEC 60950-1	
Network	PTCRB, AT&T	EV2 Model: CDG 1&2, Aeris, Sprint, Verizon EV3 Model: Verizon, Aeris	PTCRB, AT&T

\*Extreme temperatures can impact the radio's performance; this is normal. The radio is designed to fallback in class to reduce transmitter power to avoid damaging the radio. See developers guide for additional information.

Specifications for the non-cellular models available in the developers guide.

## CoreCDP Software Specifications

(Version 2.1.0)

Linux Kernel 2.6.35.14

Utilizes OpenEmbedded framework

Tested with the following Linux OS:

Ubuntu 9.10 & 11.04 (recommended)

Fedora Core 12 – 15

openSUSE 11.4

Drivers to support all peripherals included on the platform hardware

Programming Languages: Python, Java (JamVM), Perl, Ruby, C/C++, PHP

Networking: PPP, iptables

Web Server: lighttpd

Remote shell: SSH

Database: sqlite3

Network file system: samba

Software Development Kit: MultiConnect SDK

## Hardware Specifications

### Processor & Memory

- 400 MHz ARM9 CPU
- 256MB NAND flash
- 64MB SDRAM
- Developer kit includes an industrial grade 2GB SD flash memory card

### Interfaces & Peripherals

- 1 x 10/100BaseT Autosensing Ethernet Interface
- 1 x Serial TTL Interface (DTR, RXD, TXD, RTS, DCD, CTS)
- 1 x Serial TTL Interface (Debug or Data, RXD, TXD)
- 1 x USB 2.0 Full Speed Device Interface
- 1 x USB 2.0 Full Speed Host Interface
- 1 x SPI Bus Interface (6-Pin)
- 1 x I2C Bus Interface (2-Pin)
- 1 x JTAG Debug Interface (6-Pin)
- 1 x SDIO Memory Card Interface (6-Pin)
- 4 x ADC Inputs
- 6 x General Purpose Inputs
- 4 x General Purpose Outputs
- 1 x Cellular Link Status LED Output
- 2 x Ethernet LED Outputs (Speed & Link)
- 1 x Status (Heartbeat)/User Definable LED Output
- 3 x Cellular Signal Strength/User Definable LED Outputs
- 1 x User Definable LED Output
- 6 x VCC DC Input Pins (5V)
- 6 x Logic Ground Pins

### Interfaces & Peripherals (continued)

- Reset
- Battery Backup
- SD Card Detect
- SD Card Protect
- GPS PPS (Pulse Per Second)
- GPS Transmit Data
- RTC (Real Time Clock)
- Dedicated GPS receiver (Optional)
- 2G or 3G Cellular modem
- Temperature sensor

### Onboard LEDs

- 2G: Link status

### Connections

- 80-Pin Board-to-Board
- Manufacturer: Hirose
- Part number: DF12 (3.0) -80DP-0.5V/86
- Cellular Antenna: UFL
- GPS Antenna: UFL
- SIM: Standard 1.8/3V SIM receptacle (G2 & H4 models)

### GPS

- Position: 2.5 meters
- Acquisition: Hot start 1 second; cold start 29 seconds avg.
- Sensitivity: Tracking -161 dBm
- Protocol: NMEA-0183 V3.01, GGA, GLL, GSA, GSV, RMC, VTG

## Highlights

### Proven Hardware Platform

All MultiConnect OCG-E models are based on MultiTech's proven hardware design featuring our SocketModem® cellular communication devices and an ARM9 400MHz processor. The hardware is optimized for application development utilizing our CoreCDP Linux distribution.

### Linux-Based Open Source

The MultiConnect OCG-E uses the OpenEmbedded framework as the base to provide a custom Linux distribution, known as CoreCDP. This allows developers to cross-compile thousands of open source software packages and to create custom applications in a very short period of time. In many cases, existing applications can easily be run with little or no modification.

### Carrier Approved

All MultiConnect OCG-E models are carrier and PTCRB or CDG approved, relieving customers the burden and expense of obtaining these approvals independently. This also provides a faster time-to-market and improved return on investment.

### Embedded OCG Pin-Out

The MultiConnect OCG-E interfaces to your design via an 80-pin board-to-board connector giving you full access and control of the numerous interfaces and peripherals. Local connectivity options include serial, USB device and host, Ethernet, SPI, I2C. In addition, there are several user definable GPIOs, ADCs and LEDs that can be utilized to enhance your products overall design. Also included are serial and JTAG debug ports to help speed application development and debug.

### Developer Kit

The Developer Kit allows you to plug in the MultiConnect OCG-E communications device and use it for testing, programming and evaluation.

## Ordering Information

### Cellular Only Models\*

Product	Description	Region
MT100EOCG-H5	3G, HSPA+ Open Communications Gateway	Global
MT100EOCG-EV2-N2	3G, EV-DO Open Communications Gateway (Sprint)	USA
MT100EOCG-EV2-N3	3G, EV-DO Open Communications Gateway (Verizon)	USA
MT100EOCG-EV2-N16	3G, EV-DO Open Communications Gateway (Aeris)	USA
MT100EOCG-EV3-N3	3G, EV-DO Open Communications Gateway (Verizon)	USA
MT100EOCG-EV3-N16	3G, EV-DO Open Communications Gateway (Aeris)	USA
MT100EOCG-G2	2G, GPRS Open Communications Gateway	Global

### Cellular & GPS Models\*

Product	Description	Region
MT100EOCG-H5-GP	3G, HSPA+ Open Communications Gateway w/GPS	Global
MT100EOCG-EV2-GP-N2	3G, EV-DO Open Communications Gateway w/GPS (Sprint)	USA
MT100EOCG-EV2-GP-N3	3G, EV-DO Open Communications Gateway w/GPS (Verizon)	USA
MT100EOCG-EV2-GP-N16	3G, EV-DO Open Communications Gateway w/GPS (Aeris)	USA
MT100EOCG-EV3-GP-N3	3G, EV-DO Open Communications Gateway w/GPS (Verizon)	USA
MT100EOCG-EV3-GP-N16	3G, EV-DO Open Communications Gateway w/GPS (Aeris)	USA
MT100EOCG-GP-G2	2G, GPRS Open Communications Gateway w/GPS	Global

### Non-cellular Models

Product	Description	Region
MT100EOCG	Open Communications Gateway	Global
MT100EOCG-GP	Open Communications Gateway w/GPS	Global

### Developer Kit Model

Product	Description	Region
MT100EOCG-DK	Developer Kit for all Open Communications Gateway Models	Global

\* Product customization available. Contact your MultiTech representative for details.

## Services & Warranty

MultiTech's comprehensive Support Services programs offer a full array of options to suit your specific needs. These services are aimed at protecting your investment, extending the life of your solution or product, and reducing total cost of ownership. Our seasoned technical experts, with an average tenure of more than 10 years, can walk you through smooth installations, troubleshoot issues and help you with configurations. Products include a 2-year warranty.

### Installation Support

MultiTech's Installation Support Service delivers priority service with the ability to work one-on-one with an experienced MultiTech technical support engineer, to guide you through the installation process for our products.

### Technical Support Services

At MultiTech, we're committed to providing you personalized attention and quality service while providing you a quick response to your product support needs. We have several options of support for you to choose from.

For additional information on Support Services as well as other service offerings, please contact your MultiTech representative or visit [www.multitech.com/support.go](http://www.multitech.com/support.go).

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