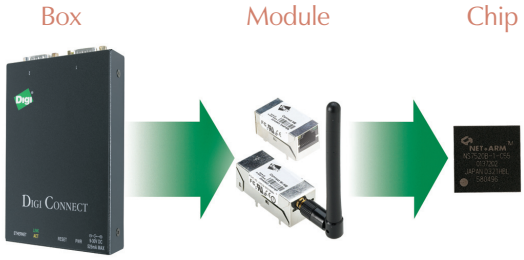
# Digi Connect ME™ Family

Wired and Wireless Embedded Modules


The industry's first interchangeable secure wired and wireless embedded modules with plug-and-play functionality and comprehensive development tools make it easy to add embedded web-enabled wired and wireless network connectivity.




Seamless migration to total integration

Future proof protection - software development migrates fully to chip solutions.

## Features/Benefits

- **Interchangeable and pin-compatible single-component solution based on 32-bit NET+ARM processor**
- **2 MB/4 MB Flash and 8 MB RAM on board**
- **High-speed TTL serial interface with up to 230 Kbps throughput**
- **Wireless Ethernet network interface**
  - **802.11b network interface with data rates up to 11 Mbps**
  - **WPA security and WEP encryption**
  - **FCC module approval improves time-to-market**
- **Wired Ethernet network interface**
  - **Auto-sensing 10/100Base-T network interface**
  - **Innovative power pass-through option for network powered products**
- **Five shared GPIO port options**
- **Low power consumption and industrial temperature range**
- **Strong SSL/TLS encryption for security sensitive environments**
  - **NIST certified AES encryption**
- **Plug-and-play firmware option eliminates embedded software development effort**
- **Easy-to-use and royalty-free NET+Works development platform for custom application development**

## Overview

The advances of personal computers and the proliferation of the Internet have laid the groundwork for an era in which billions of networked electronic devices will work invisibly and jointly with each other and with people. The introduction of wireless technology into this rapidly emerging world of ubiquitous networking creates a new dimension of network collaboration that complements existing wired infrastructures. Making the right network technology decisions is a key factor for market success and defines the competitive edge of your products.

The Digi Connect ME family of secure embedded modules enables original equipment manufacturers to keep pace with ever-evolving networking technology by delivering complete and versatile embedded network connectivity solutions. They are cost-effective and easy to implement in existing and new product designs, while powerful enough to meet your future product performance needs.

Based on a unique common platform design approach, the Digi Connect ME and Digi Connect Wi-ME™ embedded modules offer complete "drop-in" integration. This allows you to build future-proof products based on a single design supporting wired 10/100Base-T and 802.11b wireless Ethernet connectivity. The Digi Connect™ embedded modules make all of this possible without the traditional complexities of hardware and software integration work, and at a fraction of the time and cost required to create custom solutions.

Built on leading NetSilicon® 32-bit NET+ARM technology, the Digi Connect ME embedded modules also provide a seamless migration path to a fully integrated system-on-chip solution. They combine true plug-and-play functionality with the freedom and flexibility of complete software customization using the proven NetSilicon NET+Works® development platform.

An integration kit and a complete development kit containing a development board, documentation, sample code, cables and accessories are available for evaluation and development use.

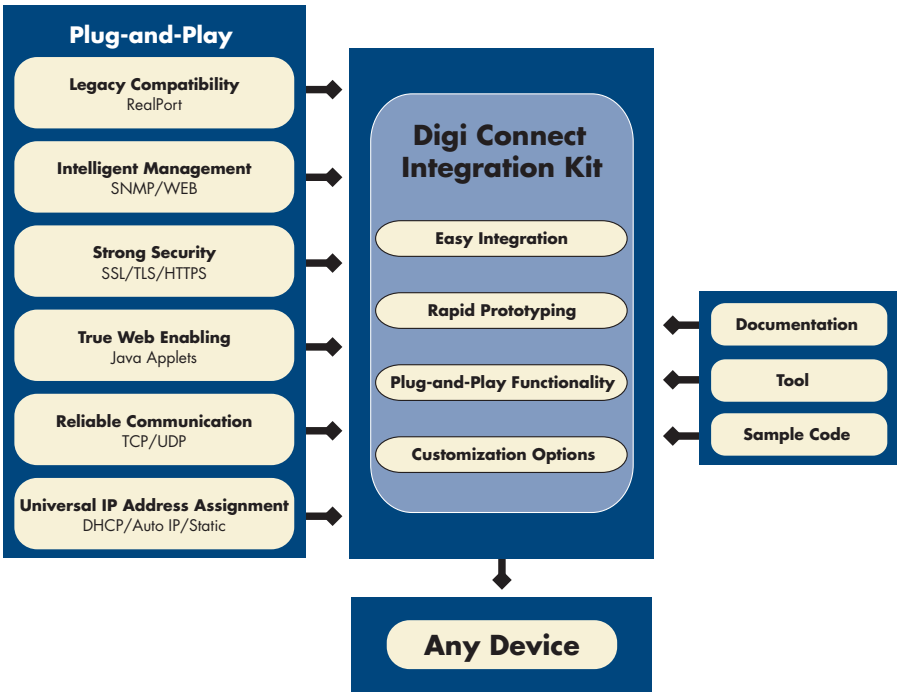
Please contact us at 1-877-OEM-DIGI or 952-912-3444 for additional information or to discuss your specific application requirements.

# Plug-and-Play Modules

The Digi Connect ME and Digi Connect Wi-ME embedded modules with plug-and-play firmware dramatically reduce time-to-market by eliminating the need for embedded hardware and software development. They deliver instant and completely transparent wired and wireless device server networking functionality, with the flexibility of web-based customization options.

Unique and industry-leading features such as a robust TCP/IP stack, universal IP address assignment, integrated web server with user file system, fully customizable web user interface, custom Java applet support, enhanced security with strong DES/3DES/AES encryption based on the SSL/TLS standard, intelligent device management via SNMP, and patented RealPort® COM/TTY port redirection make it an ideal solution for any application that requires versatility and performance.

The Digi Connect Integration Kit provides a platform for evaluation, rapid prototyping, and integration of Digi Connect embedded modules with plug-and-play firmware. It offers all tools, sample code, and documentation that make product integration and web-based product customization possible.




## SOFTWARE FEATURES

- Robust on-board TCP/IP stack with built-in web server
  - TCP, UDP, DHCP, SNMP, SSL/TLS, Telnet, Rlogin, RFC 2217, LPD, HTTP/HTTPS, SMTP, ICMP, IGMP, ARP
- Universal IP address assignment
  - Static IP, DHCP, Auto-IP
- Secure web-based configuration (HTTP/HTTPS) with context-sensitive online help
- Pre-defined and custom device profiles
- Customizable web interface option with support for Java applets
  - File system w/512 kb user space
- Telnet Command Line Interface
- Modem Emulation
- Low-level serial configuration interface (RCI)
- User-defined network service/port configuration
  - HTTP/HTTPS, Telnet, Rlogin, ADDP, SNMP, RealPort, SSL/TLS, TCP/UDP
- TCP/UDP forwarding characteristics
  - Bytes, Idle Time, Data Pattern
- User-configurable TCP/UDP Socket ID string
- Event notification via E-mail/SNMP traps
  - GPIO Status, Data Pattern
- Port logging
- Intelligent SNMP device management
  - RFC 1213/1215/1316/1317
- Strong SSL v3.0/TLS v1.0 based encryption
  - DES (56-bit), 3DES (168-bit), AES (128/256-bit)
- Patented RealPort® COM/TTY port redirection with encryption for Microsoft Windows, UNIX, and Linux environments

# Customizable Modules

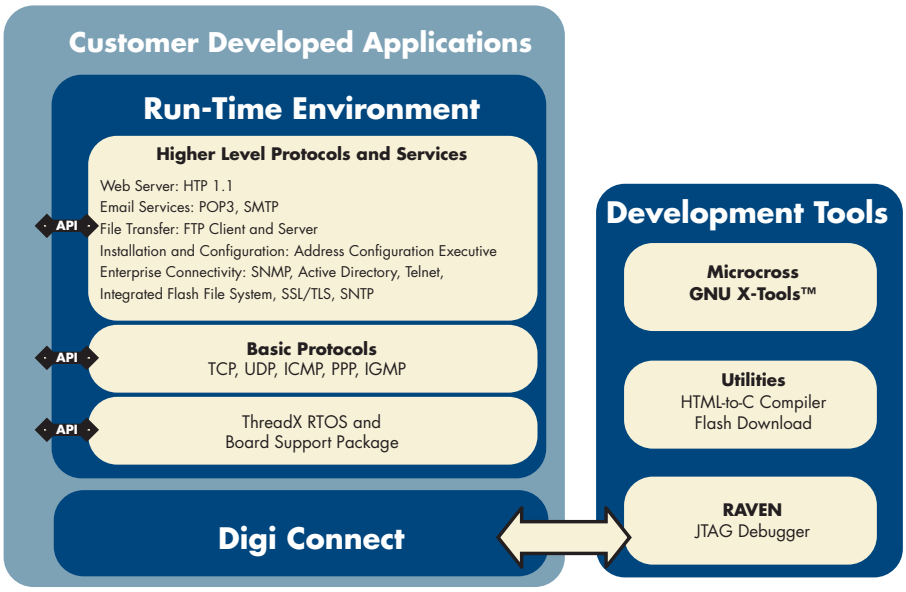
The customizable versions of the Digi Connect ME and Digi Connect Wi-ME embedded modules enable customers to quickly and cost-effectively implement and deploy application-specific and future-proof embedded software solutions for wired and wireless network environments, without the additional complexities of traditional hardware design efforts.

Based on the easy-to-use and royalty-free NetSilicon NET+Works development platform, the Digi Connect Development Kit delivers a complete out-of-the-box solution for embedded software development. It includes all the integrated building blocks that are required to quickly and cost-effectively create secure and fully network-enabled product solutions.

The common NetSilicon development platform minimizes design risk and significantly accelerates the overall embedded software development process. It provides a seamless migration path to a fully integrated NetSilicon system-on-chip solution using the award-winning family of network-enabled NET+ARM processors.

## DEVELOPMENT KIT FEATURES

- Digi Connect embedded module w/JTAG
- Development board
- Macgraigor Raven JTAG debugger
- Microcross™ GNU X-Tools with command line and visual GDB debugger
- ThreadX Realtime Operating System with picokernel™ architecture
  - Requires less than 25 kb kernel code space
- Fusion™ TCP/IP stack with full networking protocol and extended network services support
  - TCP, UDP, ICMP, IGMP, DNS, SNMPv2, LDAP, POP, SMTP, PPP, FTP, SNTP, Telnet, FastIP, Fast Sockets, Multi-Homing
- Universal IP address assignment through Address Configuration Executive (ACE)
  - Static IP, DHCP, BOOTP, Auto-IP, RARP, ARP/Ping
- Allegro Software embedded web server
- SSL 3.0/TLS 1.0 with strong encryption
  - DES, 3DES, AES
- Flexible and robust file system supporting RAM and Flash (with wear leveling)
- SMICng MIB Compiler
- Micro XML SAX Parser
- Additional utilities
  - HTML-to-C Compiler
  - Flash download
  - Sample code
- Documentation
  - Hardware reference manual
  - Programmer's guide
  - API reference
  - Advanced web server toolkit



# Features/Specifications

## HARDWARE

- 32-bit NET+ARM high-performance RISC processor (NS7520 @ 55 MHz)
- Digi Connect ME on-board memory
  - 2 MB Flash and 8 MB RAM
- Digi Connect Wi-ME on-board memory
  - 4 MB Flash and 8 MB RAM
- On-board power supervisor
- High-speed TTL serial interface
  - Throughput up to 230 Kbps
  - Full signal support for TXD, RXD, RTS, CTS, DTR, DSR and DCD
  - Hardware and software flow control
- Five shared General Purpose Input/Output (GPIO) ports
- Wave-solderable design (no clean flux process)

## NETWORK INTERFACE

**Digi Connect ME**
- Standard: IEEE 802.3
- Physical Layer: 10/100Base-T
- Data rate: 10/100 Mbps (auto-sensing)
- Mode: Full or half duplex (auto-sensing)
- Connector: RJ-45
- 802.3af mid-span power pass-through

**Digi Connect Wi-ME**
- Standard: IEEE 802.11b
- Frequency: 2.4 GHz
- Data rate: Up to 11 Mbps with automatic fallback
- Modulation: CCK (11/5 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps)
- Transmit power: 16 dBm typical
- Receive sensitivity: -82 dBm @ 11 Mbps
- Antenna connector: 1 x RP-SMA

## ENVIRONMENTAL

**Digi Connect ME**
- Operating temperature: -40° C to +85° C (-40° F to +185° F)
- Relative humidity: 5% to 95% (non-condensing)
- Altitude: 12,000 ft (3657.6 m)

**Digi Connect Wi-ME**
- Operating temperature: -20° C to +85° C (-4° F to +185° F)
- Relative humidity: 5% to 90% (non-condensing)
- Altitude: 12,000 ft (3657.6 m)

## WIRELESS SECURITY

- WEP (Wired Equivalent Privacy)
  - 64/128-bit encryption (RCA)
- WPA (Wireless Protected Access)
  - 128-bit TKIP encryption
  - 802.1x EAP authentication
    - PEAP (Protected EAP) w/EAP-MS-CHAPv2
  - Pre-shared key mode (PSK)

## LEDS

- Link integrity
- Network activity

## DIMENSIONS

**Digi Connect ME**
- Length: 1.445 in (36.7 mm)
- Width: 0.75 in (19.05 mm)
- Height: 0.735 in (18.67 mm)

**Digi Connect Wi-ME**
- Length: 1.945 in (49.4 mm)
- Width: 0.75 in (19.05 mm)
- Height: 0.735 in (18.67 mm)

## PINOUTS

| Pin | Signal | Description |
|---|---|---|
| 1 * | VETH+ | Power Pass-Thru + |
| 2 * | VETH- | Power Pass-Thru - |
| 3 | N/A | Position Removed |
| 4 | N/A | Position Removed |
| 5 | N/A | Position Removed |
| 6 | N/A | Position Removed |
| 7 | RXD | Receive Data (Input) |
| 8 | TXD | Transmit Data (Output) |
| 9 | RTS/GPIO4 | Request to Send (Output)/GPIO |
| 10 | DTR/GPIO5 | Data Terminal Ready (Output)/GPIO |
| 11 | CTS/GPIO2 | Clear to Send (Input)/GPIO |
| 12 | DSR/GPIO3 | Data Set Ready (Input)/GPIO |
| 13 | DCD/GPIO1 | Data Carrier Detect (Input)/GPIO |
| 14 | RESET | Reset |
| 15 | +3.3V | Power |
| 16 | GND | Ground |
| 17 | Reserved | Reserved |
| 18 | Reserved | Reserved |
| 19 | Reserved | Reserved |
| 20 | Reserved | Reserved |

*Digi Connect ME only

Samtec FTS-110-01-F-DV-TR 20-pin micro header (10-pin double row) with 1.27 mm (.05") pitch, positions 3-6 removed

## REGULATORY APPROVALS

- FCC, Part 15 Class B
- EN 55022, Class B
- EN 61000-3-2 and EN 61000-3-3
- ICES-003, Class B
- VCCI, Class II
- AS 3548
- FCC Part 15 Subpart C Section 15.247
- IC (Industry Canada) RSS-210 Issue 5 Section 6.2.2(o)
- EN 300 328
- EN 301 489-3
- UL 60950-1
- EN 60950 (European Union)
- CSA C22.2, No. 60950
- EN 55024

## POWER REQUIREMENTS

**Digi Connect ME**
- 3.3VDC @ 250 mA typical (825 mW)

**Digi Connect Wi-ME**
- 3.3VDC @ 400 mA max (1.32 W)

## MODEL.....PART NUMBERS

| Model | North America | International |
|---|---|---|
| **Custom Application** | | |
| Digi Connect ME Development Kit | DC-ME-01T-GN | DC-ME-01T-GN |
| Digi Connect Wi-ME Development Kit | DC-WME-01T-GN | DC-WME-01T-GN |
| **Plug-and-Play Firmware** | | |
| Digi Connect ME Integration Kit | DC-ME-01T-KT | DC-ME-01T-KT |
| Digi Connect Wi-ME Integration Kit | DC-WME-01T-KT | DC-WME-01T-KT |

Bulk packs and customer-specific packaging configurations available.
Please visit our website for a complete list of available part numbers.

## DIGI SERVICE AND SUPPORT

**You can purchase with confidence knowing that Digi is here to support you with expert technical support and a strong five-year warranty. http://support.digi.com**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