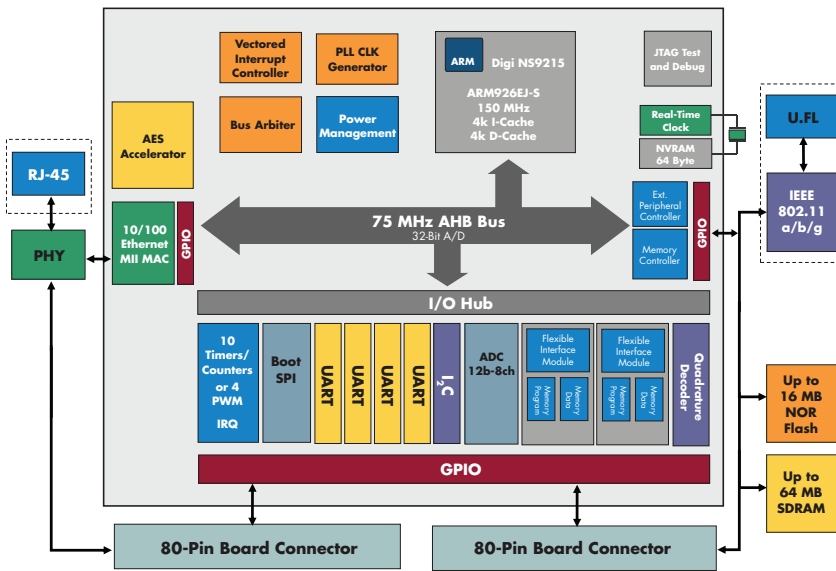


ConnectCore™ 9P 9215 Family

Highly Integrated Network-Enabled Core Module



Highly integrated and compact ARM9® core module based on the Digi's NS9215 processor. Combines main processing functionality and unique interface flexibility with secure wired and wireless network connectivity.



Features/Benefits

- Compact form factor with interchangeable module design
- Digi 32-bit NS9215 processor with powerful ARM926EJ-S core
- Digi CPU and WLAN technology for true long-term availability
- Up to 16 MB flash/32 MB RAM
- 10/100 Mbit Ethernet interface
- 802.11a/b/g wireless LAN
- Strong WPA2/802.11i security
- Rich set of on-chip interfaces and programmable FIMs
- Power management modes
- Industrial/extended temperature range
- FCC Class B low-emission design
- Complete embedded software platform offering - ThreadX®-based NET+OS®, Linux, and Microsoft® .NET Micro Framework
- Seamless migration path to fully integrated Digi NET+ARM system-on-chip solution

Overview

The ConnectCore 9P 9215 family of modules delivers powerful network-enabled core processor solutions with a rich set of integrated peripherals and superior design flexibility.

At the heart of the modules is Digi's 32-bit ARM9-based NS9215 processor running at 150 MHz. Key features include 10/100 Mbit Ethernet, two on-chip Flexible Interface Modules (FIMs), 256-bit AES accelerator, power management modes with dynamic clock scaling, and a rich set of on-chip peripherals. Based on Digi's 802.11 baseband technology, the ConnectCore Wi-9P 9215 also provides an additional 802.11a/b/g interface with enterprise-grade WPA2/802.11i support.

The unique FIMs on the NS9215 processor are two independent 300 MHz DRPIC165X processor cores that allow customers to dynamically select application-specific interfaces in software. The growing list of supported interfaces includes UART, SD/SDIO, CAN bus, 1-Wire®, USB device low-speed, PS, Wiegand, parallel bus interface, and others.

Digi's ConnectCore 9P 9215 family of modules utilize Digi's NET+ARM processor and secure 802.11a/b/g WLAN technology to offer the industry's only network-enabled core module with true long-term product availability, meeting the extended life requirements of embedded product designs. These compact modules are complete network-enabled system-on-module solutions, ideal for industrial automation, building automation, security/access control, transportation, retail and many more embedded applications.

Digi JumpStart Kits™ are cost-effective, easy-to-use solutions that minimize product design risks and dramatically shorten the time-to-market aspect for embedded product development. They enable you to take advantage of the reliability and flexibility of the royalty-free ThreadX-based NET+OS platform, the managed code benefits and rapid development of the Microsoft .NET Micro Framework platform, or the readily available library of software and community support of the Linux environment.

Digi also offers professional technical support as well as a wide range of custom hard- and software design services for your project-specific development needs.

DIGI JUMPSTART KIT FOR NET+OS: OVERVIEW

The Digi JumpStart Kit for NET+OS delivers a royalty-free turnkey solution for embedded software development based on the ThreadX Real-Time Operating System (RTOS). With over 400 million deployments in products worldwide, it is one of most reliable and field-proven RTOS solutions available on the market. In addition to ThreadX, NET+OS provides the integrated building blocks needed to create product solutions with leading support network security using Digi embedded modules and microprocessors. This includes an IPv4/IPv6 enabled TCP/IP stack, web server, SNMP device management, and full standards-based SSL/TLS support.

For professional NET+OS software development, the Microsoft Windows-based Digi ESP™ for NET+OS Integrated Development Environment (IDE) with graphical user interface and a high-speed USB 2.0 hardware debugger are provided out-of-the-box.



- **Royalty-free turnkey solution for embedded software development**
- **Built on field-proven and compact ThreadX Real-Time Operating System**
- **Fully integrated support for secure, IPv4/IPv6 networking applications**
- **Professional software development using Windows-based Digi ESP IDE**

DIGI JUMPSTART KIT FOR .NET MICRO FRAMEWORK: OVERVIEW

The Digi JumpStart Kit for Microsoft .NET Micro Framework provides an easy-to-use and complete off-the-shelf solution for Microsoft .NET Micro Framework embedded software development for the ConnectCore 9P 9215. It also includes a fully functional 90-day trial of Microsoft Visual Studio® 2005.

Built on the .NET foundation and optimized for use in small intelligent devices, the .NET Micro Framework combines the reliability and efficiency offered by a .NET enabled managed code environment, Digi's exclusive and complete support for TCP/IP network connectivity, the strength of the C# programming language, and the professional Microsoft Visual Studio 2005 development tools. The seamless integration with Visual Studio makes rapid embedded application development instantly accessible to software designers with experience on the traditional Microsoft desktop and server operating system platforms.



- **Complete and royalty-free embedded development solution**
- **Robust managed code environment based on .NET programming model**
- **Digi-exclusive TCP/IP network stack and platform-specific extensions**
- **State-of-the-art software development using Microsoft Visual Studio 2005**

DIGI JUMPSTART KIT FOR EMBEDDED LINUX: OVERVIEW

Digi Embedded Linux 4 provides all software components required to build secure, network-enabled Linux 2.6 based products right out of the box. The included Digi ESP for Embedded Linux IDE is based on the open Eclipse™ framework and offers a seamlessly integrated and professional solution for embedded Linux software development. It increases design productivity dramatically by greatly simplifying and accelerating the development process for applications as well as low-level components.

Digi Embedded Linux 4 also includes full Digi hardware platform support (BSPs) and a breadth of ready-to-use software components and services like a customizable boot loader, web server, file system support, networking, secure communication, database connectivity, scripting, and others. The Digi Embedded Linux 4 is fully tested and delivers the unrestricted flexibility and openness of Linux without the difficulties of standard software package integration, manual tool chain or kernel builds.



- **Off-the-shelf development platform for network-enabled embedded systems**
- **Eclipse-based Digi ESP Integrated Development Environment (IDE) for accelerated application development**
- **Royalty-free and with optimized 2.6 kernel and services support**
- **Future-proof and reliable platform with regular maintenance updates**
- **Full source code included**

Development Kits

DIGI JUMPSTART KIT FOR NET+OS: CONTENTS

- ConnectCore 9P/Wi-9P 9215 module
 - 4 MB NOR Flash, 8 MB SDRAM
- Digi JumpStart Kit development board
 - Ethernet connector, 4 serial ports (1 x RS-232/422/485, 1 x RS-232, 2 x TTL), user/application connectors, I²C/SPI headers, ADC header, screw terminal for access to 8 GPIO signals, 2 user push-buttons, 2 user LEDs, wake-up button, reset button, 802.3af PoE module connector, antenna connectors, battery backup, 9-30VDC power supply, power switch, mounting holes
- Digi NET+OS CD
 - NET+OS 7, Digi ESP IDE, BSP source code, sample code, Green Hills MULTI support option, user documentation
- Digi JTAG Link USB 2.0 hardware debugger
- Documentation
 - Quick start guide, Digi ESP tutorial, NET+OS programmer's guide, NET+OS API documentation, Advanced Web Server, hardware reference manual, development board schematics
- Power supply and accessories
 - External wall power supply (110/240VAC) with interchangeable outlet adapters (North America, EU, UK, and Australia), JTAG adapter, Ethernet cable, serial cable, antennas



DIGI JUMPSTART KIT FOR .NET MICRO FRAMEWORK: CONTENTS

- ConnectCore 9P 9215 module
 - 4 MB NOR Flash, 8 MB SDRAM
- Digi JumpStart Kit development board
 - Ethernet connector, 4 serial ports (1 x RS-232/422/485, 1 x RS-232, 2 x TTL), user/application connectors, I²C/SPI headers, ADC header, screw terminal for access to 8 GPIO signals, 2 user push-buttons, 2 user LEDs, wake-up button, reset button, 802.3af PoE module connector, battery backup, 9-30VDC power supply, power switch, mounting holes
- Digi .NET Micro Framework CD
 - Platform support, templates and samples, documentation
- Microsoft Visual Studio 2005 CD with 90-day trial license
- Documentation
 - Quick start guide, getting started guide, online help, hardware reference manual, development board schematics
- Power supply and accessories
 - External wall power supply (110/240VAC) with interchangeable outlet adapters (North America, EU, UK, and Australia), JTAG adapter, Ethernet cable, serial cable



DIGI JUMPSTART KIT FOR EMBEDDED LINUX: CONTENTS

- ConnectCore 9P/Wi-9P 9215 module
 - 16 MB NOR Flash, 32 MB SDRAM
- Digi JumpStart Kit development board
 - Ethernet connector, 4 serial ports (1 x RS-232/422/485, 1 x RS-232, 2 x TTL), user/application connectors, I²C/SPI headers, ADC header, screw terminal for access to 8 GPIO signals, 2 user push-buttons, 2 user LEDs, wake-up button, reset button, 802.3af PoE module connector, antenna connectors, battery backup, 9-30VDC power supply, power switch, mounting holes
- Digi Embedded Linux 4 DVD
 - Digi Embedded Linux, Digi ESP IDE, Linux and platform specific source code, Universal boot loader source code (U-Boot), sample code, documentation
- Documentation
 - Quick start guide, Digi Embedded Linux User's Guide, Hardware reference manual, development board schematics
- Power supply and accessories
 - External wall power supply (110/240VAC) with interchangeable outlet adapters (North America, EU, UK, and Australia), Ethernet cable, serial cable, antennas



Features/Specifications

HARDWARE

- 32-bit Digi NS9215 processor @ 150 MHz (ARM926EJ-S)
- 2 Flexible Interface Modules (FIMs)
 - 300 MHz DRPIC165X CPUs
 - 2k program/192 bytes data RAM
- On-chip 256-bit AES accelerator
- Power management modes
 - On-the-fly clock scaling
 - Low power sleep modes
 - Configurable scaling/wake-up events (RTC, ADC, EIRQ, UART, etc.)
- On-board memory
 - Flash: 2 / 4 / 8 / 16 MB NOR
 - RAM: 8 / 16 / 32 MB SDRAM
- Up to 4 high-speed UARTs
 - Maximum data rate 1.8432 Mbps
- Serial Peripheral Interface (SPI)
 - Master data rate 33.3 Mbps
 - Slave data rate 7.5 Mbps
- I²C v1.0 bus interface
 - 7-bit and 10-bit address modes
- 17-bit address and 16-bit data bus with 2 external chip select
- 2 external IRQs
- 12-bit/8-channel ADC
 - External reference
- Software watchdog timer
- Up to ten 16-/32-bit timers/counters
 - Modes: Internal timer with external terminal count option, external gated timer, event counter
- Quadrature decoder/counter
- Up to 5 PWM functions
- 2 general purpose LEDs
- POR controller
- JTAG interface
- Up to 64 shared GPIOs
- 5V-tolerant general purpose and memory inputs
- Real-time clock and 64 byte of NVRAM w/external battery backup

NETWORK INTERFACE

Wired

- Standard: IEEE 802.3
- Physical layer: 10/100Base-T
- Data rate: 10/100 Mbps
- Mode: Full or half duplex

Wireless LAN

- Standard: IEEE 802.11a/b/g
- WPA2/802.11i security
- Frequency: 2.4/5 GHz
- Data rate: Up to 54 Mbps with automatic rate fallback
- Modulation: DBPSK (1 Mbps), DQPSK (2 Mbps), CCK (11, 5.5 Mbps), BPSK (6, 9 Mbps), QPSK (12, 18 Mbps), 16-QAM (24, 36 Mbps), 64-QAM (48, 54 Mbps)
- Typical transmit power: 18 dBm @ 1 Mbps (802.11b) 12 dBm @ 54 Mbps (802.11g)
- Receive sensitivity: -72 dBm @ 54 Mbps (802.11a/g)
- Connectors: 2 x U.FL

POWER REQUIREMENTS

ConnectCore 9P 9215

- 3.3VDC @ 554 mA max (1.83 W) Normal Operation
 - 3.3VDC @ 443 mA typical (1.46 W)
 - UART B/D and Ethernet on Low Speed Idle Mode (approx.)
 - 3.3VDC @ 208 mA (686 mW)
 - /16 clock scaling, Ethernet on Sleep Mode (approx.)
 - 3.3VDC @ 46 mA (151 mW)
 - EIRQ wake-up, Ethernet PHY off
- ### ConnectCore Wi-9P 9215
- 3.3VDC @ 786 mA max (2.6 W) Normal Operation
 - 3.3VDC @ 716 mA (2.36 W)
 - UART B/D,WLAN on, Ethernet on Low Speed Idle Mode (approx.)
 - 3.3VDC @ 533 mA (1.76 W)
 - /4 clock scaling,WLAN on, Ethernet on Sleep Mode (approx.)
 - 3.3VDC @ 138 mA (460 mW)
 - Wake-up on EIRQ,WLAN off, Ethernet PHY off

ENVIRONMENTAL

- Operating temperature: **ConnectCore 9P 9215**
 - -40 to +85°C
- **ConnectCore Wi-9P 9215**
 - -40 to +65°C @ 100% duty cycle
 - -40 to +85°C @ 33% duty cycle

DIMENSIONS

- Width: 1.97 in (50 mm) **ConnectCore 9P 9215**
- Length: 1.97 in (50 mm) **ConnectCore Wi-9P 9215**
- Length: 2.75 in (70 mm)

REGULATORY APPROVALS (PENDING)

- 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 Sub C Section 15.247
- IC RSS-210 Issue 5 Section 6.2.2(o)
- EN 300 328, EN 301 489-17
- UL 60950-1, EN 60950 (EU)
- CSA C22.2, No. 60950
- EN 55024

MODEL.....PART NUMBERS

Development Kits

- ConnectCore 9P 9215 Digi JumpStart Kit for NET+OS
 - ConnectCore Wi-9P 9215 Digi JumpStart Kit for NET+OS
 - ConnectCore 9P 9215 Digi JumpStart Kit for Embedded Linux
 - ConnectCore Wi-9P 9215 Digi JumpStart Kit for Embedded Linux
 - ConnectCore 9P 9215 Digi JumpStart Kit for .NET Micro Framework
- Please visit our website for a complete list of available part numbers and accessories.

North America

- CC-9P-9215-NET
- CC-W9P-9215-NET
- CC-9P-9215-LX
- CC-W9P-9215-LX
- CC-9P-9215-MF

International

- CC-9P-9215-NET
- CC-W9P-9215-NET
- CC-9P-9215-LX
- CC-W9P-9215-LX ▶ Q1 2009
- CC-9P-9215-MF



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Digi International, the leader in device networking for business, develops reliable products and technologies to connect and securely manage local or remote electronic devices over the network or via the web. With over 20 million ports shipped worldwide since 1985, Digi offers the highest levels of performance, flexibility and quality.

www.digiembedded.com

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