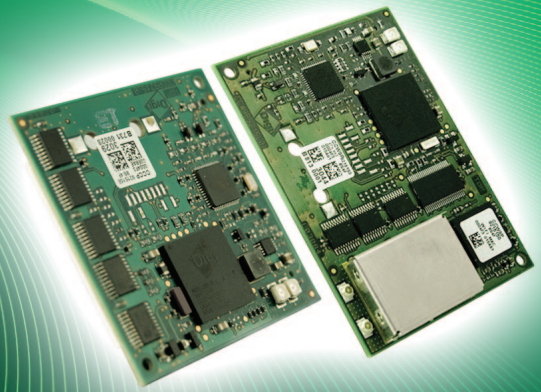# ConnectCore™ 9P 9215 Family

Highly Integrated Network-Enabled Core Modules

Compact ARM9-based core modules combine main processing functionality and unique interface flexibility with secure wired and wireless network connectivity.
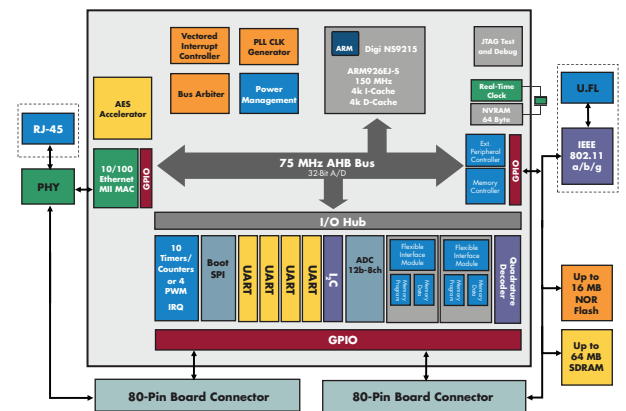
Overview

The ConnectCore 9P 9215 family delivers pin-compatible modules utilizing Digi's 32-bit NS9215 processor and secure 802.11a/b/g WLAN technology, offering the industry's only network-enabled modules with true long-term product availability that meet the extended life cycle requirements of embedded product designs.

The unique FIMs on the NS9215 processor are two independent 300 MHz DRPIC165X processor cores that allow you 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, I²S and others.

Cost-effective and easy-to-use Digi JumpStart Kit® development solutions allow you to take advantage of the reliable and royalty-free ThreadX®-based NET+OS® platform, the managed code benefits and rapid development using the Microsoft® .NET Micro Framework, or the readily available library of software and strong community of the Linux® environment.

Related Products

Design Services

Accessory Kits

Support

NET+OS

.net Micro Framework

Supported Software Platforms

Block Diagram

Features/Benefits

- Compact, interchangeable 150 MHz ARM9 modules

- Integrated 10/100 Mbit Ethernet interface

- 802.11a/b/g wireless LAN with WPA2/802.11i security

- Rich set of peripheral connectivity options

- 2 programmable interface controllers (FIM)

- Industrial/extended temperature range

- Pre-certified low-emission design

- Digi processor and WLAN technology for true long-term availability

- Seamless migration path to Digi NET+ARM system-on-chip solution

Development Kits

Digi JumpStart Kits Overview

Digi JumpStart Kit for NET+OS	Digi JumpStart Kit for Microsoft .NET Micro Framework	Digi JumpStart Kit for Embedded Linux
This royalty-free turnkey solution for embedded software development is based on the ThreadX Real-Time Operating System (RTOS), one of the most reliable and field-proven RTOS solutions available. In addition to ThreadX, NET+OS provides the integrated building blocks needed to create product solutions with leading network security using Digi embedded modules and microprocessors. For professional NET+OS software development, the Eclipse based Digi ESP™ Integrated Development Environment (IDE) for Microsoft Windows with graphical user interface and a high-speed USB 2.0 hardware debugger, is provided out-of-the-box. • Royalty-free turn-key solution for embedde development • Built on field-proven and compact ThreadX RTOS • Fully integrated support for secure, IPv4/IPv6 networking applications • Professional software development using Windows-based Digi ESP IDE	This complete off-the-shelf development solution enables easy Microsoft .NET Micro Framework embedded software development. The kit 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 Visual Studio development tools, which make rapid embedded application development 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 • TCP/IP network stack and platform-specific extensions • State-of-the-art software development using Microsoft Visual Studio 2005	Built around a standard Linux 2.6 kernel distribution, the Digi JumpStart Kit for Embedded Linux is tailored to the specific needs of embedded Linux development and provides an easy-to-use, complete off-the-shelf embedded development platform. It includes all components that are required to build secure network-enabled products based on the ConnectCore 9P 9215 family. The kit includes Digi ESP™ for Embedded Linux, a powerful and fully Linux-hosted Integrated Development Environment based on the open Eclipse™ framework. Ideal for new and experienced Linux developers, Digi ESP improves software design productivity by accelerating and greatly simplifying driver and application development through a user-friendly graphical interface. • Complete Linux embedded Linux development platform • Royalty-free and with optimized 2.6 kernel and services • Linux-based Digi ESP IDE for rapid product development • Full Linux and Digi Board Support Package (BSP) source

Digi JumpStart Kit Contents

Software Platform	NET+OS	Microsoft .NET Micro Framework	Embedded Linux
Module	ConnectCore 9P/Wi-9P 9215 w/ 4 MB NOR Flash, 8 MB SDRAM	ConnectCore 9P 9215 w/ 4 MB NOR Flash, 8 MB SDRAM	ConnectCore 9P/Wi-9P 9215 w/ 16 MB NOR Flash, 32 MB SDRAM
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		
CD/DVD	Digi NET+OS CD: NET+OS 7, Digi ESP IDE, BSP source code, sample code, Green Hills MULTI support option, user documentation	Digi .NET Micro Framework CD: Platform support, templates and samples, documentation Microsoft Visual Studio 2005 CD with 90-day trial license	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 ESP tutorial, NET+OS programmer's guide, NET+OS API documentation, Advanced Web Server, hardware reference manual, development board schematics	Quick start guide, getting started guide, online help, hardware reference manual, development board schematics	Quick start guide, Digi Embedded Linux user's guide, hardware reference manual, development board schematics
Power Supplies and Accessories	External wall power supply (110/240VAC) with interchangeable outlet adapters (North America, EU, UK, and Australia), Ethernet cable, serial cable, antennas		
Other	Digi JTAG Link USB 2.0 hardware debugger	—	—
Kit Part Numbers			
Ethernet Only	CC-9P-9215-NET	CC-9P-9215-MF	CC-9P-9215-LX
WLAN + Ethernet	CC-W9P-9215-NET	N/A	CC-W9P-9215-LX

Please refer to the feature specs on our website for detailed information about the specific software platform capabilities.

Platform	ConnectCore™ 9P 9215	ConnectCore™ Wi-9P 9215
Hardware		
Processor Type	32-bit NS9215 processor	
ARM Core	ARM926EJ-S	
Cache	4k I-Cache/4k D-Cache	
Processor Speed	150 MHz	
Memory Base Population	Up to 16 MB NOR flash Up to 32 MB SDRAM	
Additional Population Options	RJ-45 Ethernet connector 2 / 4 / 8 / 16 MB NOR flash 8 / 16 / 32 MB SDRAM	
Flexible Interface Modules (FIMs)	2 x 300 MHz DRPIC165X CPUs with 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.)	
Pins/Form Factor	Small-footprint module with 2 x 80-pin board-to-board connectors	
UART	Up to 4 high-speed UARTs; Maximum data rate 1.8432 Mbps	
GPIO	Up to 64 GPIOs; 2 external IRQs	
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	
External Memory Bus	17-bit address and 16-bit data bus with 2 external chip select	
ADC	12-bit/8-channel; External reference	
Timers/PWM	Up to ten 16-/32-bit timers/counters Modes: internal timer with external terminal count option, external gated timer, event counter Up to 5 PWM functions	
LEDs	2 (general purpose)	
POR controller	•	
Watchdog Timer (16-bit)	•	
Real-Time Clock	With 64 bytes of NVRAM and external battery backup	
JTAG interface	•	
Quadrature Decoder/Counter	•	
5V Tolerant General Purpose and Memory Inputs	•	
Dimensions (L x W x H)	1.97 in (50 mm) x 1.97 in (50 mm) x 6.1 mm (population option w/o RJ-45)	2.75 in (70 mm) x 1.97 in (50 mm) x 8.6 mm (population option w/o RJ 45)
Network Interface - Wired		
Standard	IEEE 802.3	
Physical Layer	10/100Base-T	
Data Rate	10/100 Mbps (auto-sensing)	
Mode	Full or half duplex (auto-sensing)	
Network Interface – Wireless LAN		
Standard	IEEE 802.11a/b/g	
Security	WEP/WPA/WPA2/802.11i	
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	

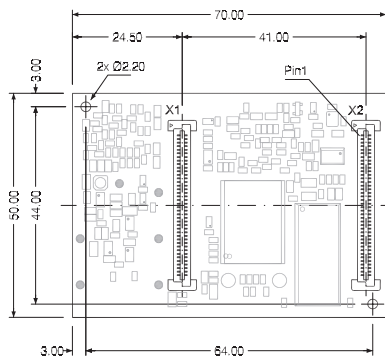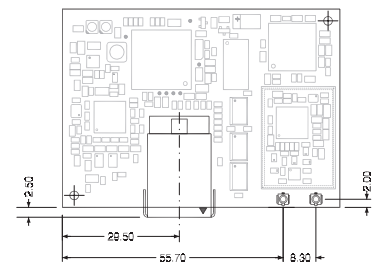| Platform	ConnectCore™ 9P 9215	ConnectCore™ Wi-9P 9215
Environmental		
Operating Temperature	-40° C to +85°C	-40° C to +65°C @ 100% WLAN duty cycle -40° C to +85°C @ 33% WLAN duty cycle
Storage Temperature	-50° C to 125° C (-58° F to 257 °F)	
Relative Humidity	5% to 95% (non-condensing)	
Altitude	12,000 feet (3,658 meters)	
Power Requirements (3.3V)		
Maximum	554 mA (1.83 W)	786 mA (2.6 W)
Typical	443 mA (1.46 W); UART B/D and Ethernet on	716 mA (2.36 W); UART B/D,WLAN on, Ethernet on
Idle	208 mA (686 mW); /16 clock scaling, Ethernet on	533 mA (1.76 W); /4 clock scaling,WLAN on, Ethernet on
Sleep	46 mA (151 mW); EIRQ wake-up, Ethernet PHY off	138 mA (460 mW); Wake-up on EIRQ,WLAN off, Ethernet PHY off
Regulatory Approvals		
FCC Part 15 Class B, EN 55022 Class B	•	
EN 61000-3-2 and EN 61000-3-3	•	
EN 301 893 v1.5.1 (2008-12)	•	
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	•	
Japan	•	

• Module Feature

ConnectCore 9P 9215 Bottom View
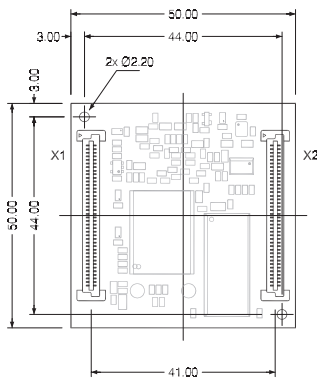
ConnectCore Wi-9P 9215 Bottom View

ConnectCore Wi-9P 9215 Top View

ConnectCore Wi-9P 9215 Side View

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