

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

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 or the readily available library of software and strong community of the Linux® environment.

- 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

The diagram illustrates the internal architecture of the ARM926EJ-S 150 MHz SoC, which includes 4k I-Cache and 4k D-Cache. Key components and interfaces are as follows:

- Internal SoC Components:**
 - ARM926EJ-S 150 MHz:** The central processor core.
 - Digi NS9215:** A digital interface component.
 - JTAG Test and Debug:** For system testing and debugging.
 - Real-Time Clock (RTC):** For timekeeping.
 - NVRAM 64 Byte:** Non-volatile random access memory.
 - Power Management:** Manages the system's power state.
 - Bus Arbiter:** Manages access to the system bus.
 - Vectored Interrupt Controller:** Manages system interrupts.
 - PLL CLK Generator:** Provides clock signals to various components.
 - AES Accelerator:** Hardware acceleration for AES encryption/decryption.
 - 10/100 Ethernet MAC:** Network interface controller.
 - PHY:** Physical layer interface for the Ethernet MAC.
 - 75 MHz AHB Bus 32-Bit A/D:** The system's main internal bus.
 - I/O Hub:** Manages data flow between internal components and external interfaces.
 - GPIO:** General Purpose Input/Output pins.
 - Ext. Peripheral Controller:** Manages external peripherals.
 - Memory Controller:** Manages access to external memory.
- External Interfaces:**
 - RJ-45:** Ethernet network interface.
 - U.FL:** Universal Flash Interface for external storage.
 - IEEE 802.11 a/b/g:** Wireless network interface.
 - Up to 16 MB NOR Flash:** Non-volatile memory for code storage.
 - Up to 64 MB SDRAM:** Synchronous dynamic random access memory for data storage.
 - 80-Pin BoardConnector:** Two connectors for board-level interfacing.

DIGI JUMPSTART KITS® OVERVIEW

DIGI JUMPSTART KIT FOR NET+OS

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 embedded 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



DIGI JUMPSTART KIT FOR EMBEDDED LINUX

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



SOFTWARE PLATFORM	NET+OS	EMBEDDED LINUX
MODULE	ConnectCore 9P/Wi-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 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, 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	—

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

SPECIFICATIONS		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	Yes		
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	Yes		
WATCHDOG TIMER (16-BIT)	Yes		
REAL-TIME CLOCK	With 64 bytes of NVRAM and external battery backup		
JTAG INTERFACE	Yes		
QUADRATURE DECODER/COUNTER	Yes		
5V TOLERANT GENERAL PURPOSE AND MEMORY INPUTS	Yes		
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		

SPECIFICATIONS

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	-40° C up to +85° C (-40° F to +185° F)	
RELATIVE HUMIDITY	5% to 95% (non-condensing)	
ALTITUDE	12,000 feet (3,658 meters)	

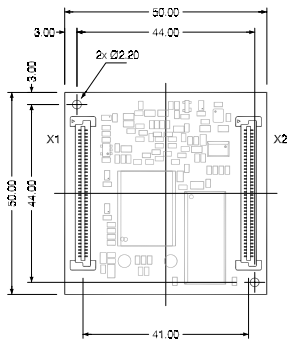
POWER REQUIREMENTS (3.3V)

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

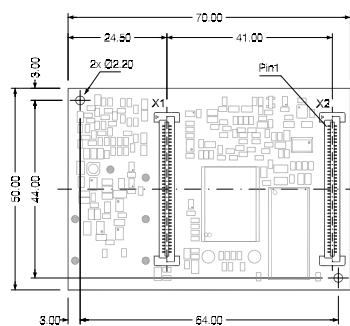
REGULATORY APPROVALS

FCC PART 15 CLASS B, EN 55022, CLASS B	Yes
EN 61000-3-2 AND EN 61000-3-3	Yes
EN 301 893 V1.5.1 (2008-12)	Yes
ICES-003 CLASS B, VCCI CLASS II, AS 3548	Yes
FCC PART 15 SUB C SECTION 15.247	Yes
IC RSS-210 ISSUE 5 SECTION 6.2.2(O)	Yes
EN 300 328, EN 301 489-17	Yes
UL 60950-1, EN 60950 (EU)	Yes
CSA C22.2, NO. 60950	Yes
EN 55024	Yes
JAPAN	Yes

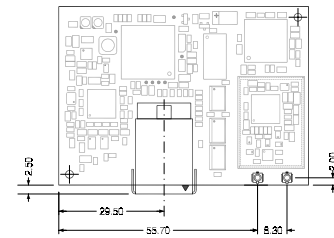
ConnectCore 9P 9215 Bottom View



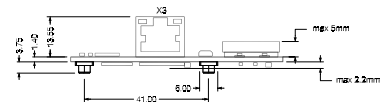
ConnectCore Wi-9P 9215 Bottom View



ConnectCore Wi-9P 9215 Top View



ConnectCore Wi-9P 9215 Side View



THREAD X



PART NUMBERS

DESCRIPTION

MODULES FOR LINUX

CC-9P-V513-LX	ConnectCore 9P 9215, 8 MB flash, 16 MB SDRAM, no on-module RJ
CC-9P-V524-LX	ConnectCore 9P 9215, 16 MB flash, 32 MB SDRAM, no on-module RJ

MODULES FOR NET+OS

CC-9P-V502-C	ConnectCore 9P 9215 module with 4 MB Flash, 8 MB SDRAM, no on-module RJ-45
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