

# NET+40-QITRO-4 Datasheet



DiGi Electronics Part Number	NET+40-QITRO-4-DG
Manufacturer	<a href="#">Digi</a>
Manufacturer Product Number	NET+40-QITRO-4
Description	IC MPU 32B 33MHZ LINUX 208QFP
Detailed Description	Embedded, Integrated Circuits (ICs)

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RFQ Email: [Info@DiGi-Electronics.com](mailto:Info@DiGi-Electronics.com)

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## Purchase and inquiry

Manufacturer Product Number:

NET+40-QITRO-4

Series:

NET+ARM®

DiGi-Electronics Programmable:

Not Verified

Core Processor:

ARM7®

Controller Series:

NET+40

Interface:

EBI/EMI, Ethernet, DMA, HDLC, IEEE1284/ENI, SPI, UART

Voltage - Supply:

3V ~ 3.6V

Mounting Type:

Surface Mount

Supplier Device Package:

208-PQFP (28x28)

Manufacturer:

Digi

Product Status:

Obsolete

Applications:

Network Processor

Program Memory Type:

External Program Memory

RAM Size:

External

Number of I/O:

24

Operating Temperature:

-40°C ~ 85°C

Package / Case:

208-BFQFP

## Environmental & Export classification

Moisture Sensitivity Level (MSL):

3 (168 Hours)

ECCN:

3A991A2

REACH Status:

REACH Unaffected

HTSUS:

8542.31.0001

# NET+40

## Embedded Ethernet/Internet-Ready Processor

### Features

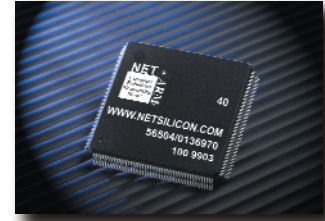
- 32-bit high performance ARM7TDMI RISC processor
- Integral 10/100BaseT Ethernet MAC
- 4KB unified instruction/data cache
- Large 2KB Rx buffer for reliable network performance
- Patented 10-channel DMA controller
- Includes complete, production-ready NET+Works networking software and comprehensive development support
- Complete scalability throughout the product line with pin and software compatibility
- Run-time binary license for NetSilicon's NET+OS™ or Wind River's pSOS+™ RTOS included at no additional cost
- esmertec's Jbed

### Benefits

- Complete software and hardware for networking electronic devices
- Dramatic time to market reductions
- Reduce your product unit costs
- Save your engineering resources
  - No networking development
  - No long-term support needed
- Performance tuned
- Fully integrated solution
- Production ready now

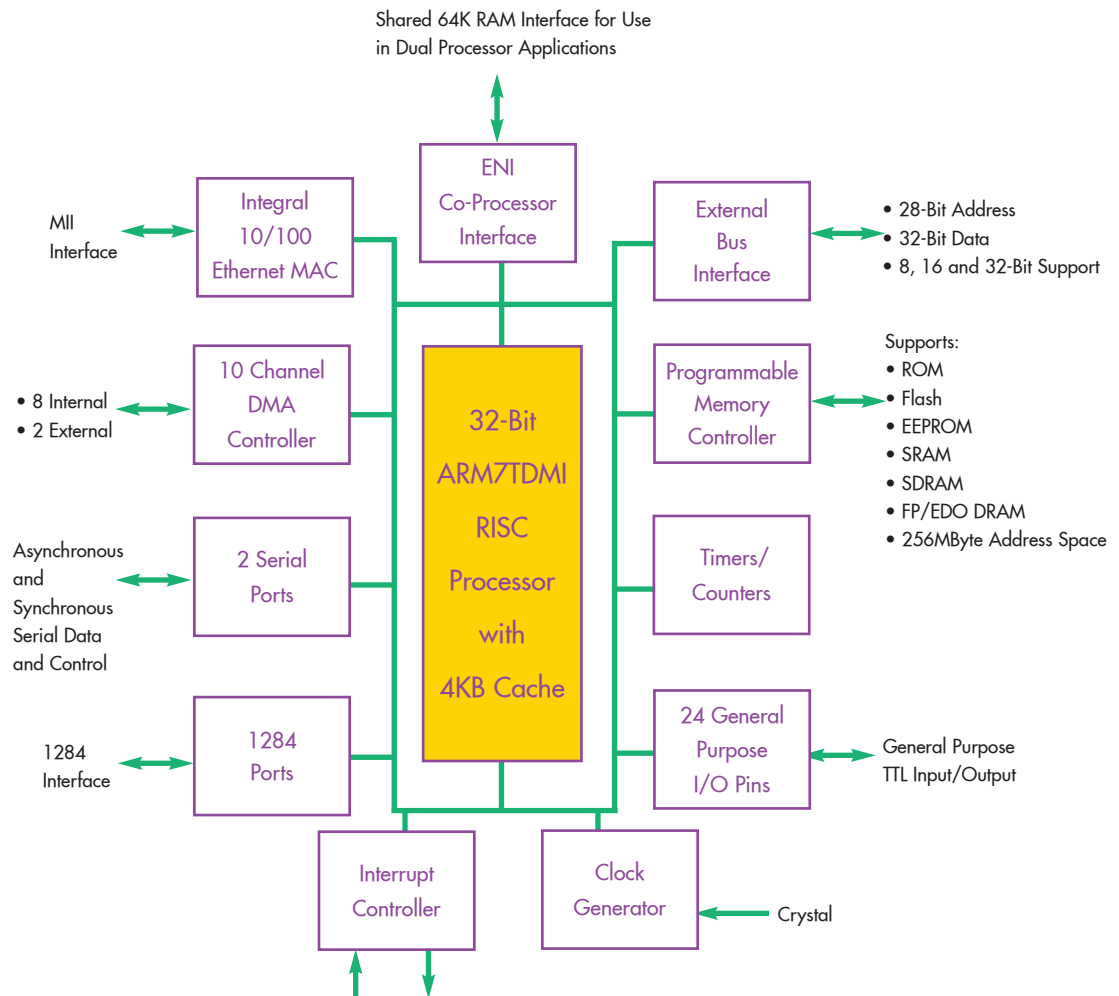
The NetSilicon NET+40 is a high-performance, highly integrated 32-bit microprocessor designed for use in intelligent networked devices and Internet appliances. It includes an ARM7TDMI core, integral 10/100BaseT Ethernet MAC with an MII interface, patented 10-channel DMA controller and a sophisticated memory controller supporting all of the popular memory devices in use today.

The NET+40 is part of the award-winning NET+ARM® family of networked microprocessors. This family provides scalability and pin-for-pin compatibility over



a broad performance range. NET+ARM microprocessors are the hardware core of the NET+Works™ platform of highly integrated and tested solutions for adding intelligence and connectivity to electronic devices.

### NET+40 Processor Block Diagram



## Hardware Specifications

### 32-Bit ARM7TDMI RISC Processor

- Full 32-bit ARM mode
- 15 general-purpose 32-bit registers
- 32-bit program counter and status register
- 5 supervisor modes, 1 user mode

### On-Chip Cache

- 4K unified instruction/data cache
- 4-way set associative
- Lockable entries
- Write through/copy back

### Integral 10/100 Ethernet MAC

- 10/100Mbit MII based PHY interface
- 10Mbit ENDEC interface
- Supports TP-PMD and fiber-PMD devices
- Full duplex
- Optional 4B/5B scrambling
- Full statistics gathering (SNMP and RMON)
- Station, broadcast, multicast address detection and filtering
- 128 byte transmit FIFO
- 2K byte receive FIFO
- Intelligent receive side buffer selection
- External CAM filtering

### 10-Channel DMA Controller

- 2 dedicated to Ethernet transmit/receive
- 4 dedicated to serial transmit/receive
- 2 dedicated to P1284 interface
- Flexible buffer management
- 2 channels configurable for external peripherals

### Serial Ports

- 2 fully independent HDLC/UART/SPI serial ports
- 32 byte transmit/receive FIFOs
- Internal programmable bit-rate generators
- Bit rates from 75 – 230400: 16X mode
- Bit rates from 1200 – 4Mbps: 1X mode
- Odd, even, or no parity
- 5, 6, 7 or 8 bits
- 1 or 2 stop bits
- Both internal & external clock support
- Receive side character and buffer gap timers
- 4 receive side data match detectors

### Bus Interface

- 5 independent programmable chip selects
- Supports 8-, 16-, 32-bit peripherals
- Supports external address decoding and cycle termination
- Supports dynamic bus sizing
- Supports ASYNC and SYNC peripheral timing
- All chip selects support SRAM, FP/EDO DRAM, SDRAM, Flash, EEPROM without external glue logic
- Internal DRAM address multiplexing
- Internal refresh controller (CAS before RAS)
- 256Mbyte addressing per chip select
- Burst-mode support
- 0-15 wait states per chip select
- Bootstrap support
- External bus master support
- Internal or external bus arbiters

### P1284/ENI Interface

- 4 IEEE 1284 parallel ports
- 64K shared RAM ENI interface (8 or 16-bit)
- Full duplex FIFO mode interface (8 or 16-bit)
- 32 byte transmit/receive FIFOs

### Timers

- Two independent 26-bit programmable timers
- Programmable watch-dog timer (interrupt or reset on expiration)
- Programmable bus timer

### General Purpose I/O

- Up to 24 programmable I/O pins
- 4 pins with programmable interrupt

### Clock Generator

- Simple external crystal
- On-board programmable phase lock loop
- Supports direct external clock input

### Package

- 208-pin PQFP, 0.020 inch (0.5 mm) pitch

### Other

- Operating voltage:
  - 3.0 – 3.6V
- Industrial temperature range (-40°C – 85°C)

## Development Support

### NET+Works Development Systems

NET+ARM microprocessors are the hardware core of the NET+Works platform of highly integrated and tested solutions for adding intelligence and connectivity to electronic devices. NetSilicon offers a variety of options to support different application environments.

### NET+OS Complete Development System

For deeply embedded applications requiring real-time performance and small code footprints. Includes:

- ThreadX™ RTOS
- Green Hills™ MULTI® 2000 IDE
- NET+Works suite of drivers, protocols and services
  - NET+ARM Drivers (10/100 BaseT Ethernet MAC, Serial – UART, HDLC, DMA, Interrupt Controller, FLASH memory)
  - Networking Protocols (TCP/IP, UDP, PING, RARP, PPP, IGMP, Telnet)
  - Networking Services, with APIs (HTTP v1.1 Client and Server, POP3 and SMTP Email, FTP Client and Server, SNMP MIBII and proxy agent, BOOTP, DHCP & DNS)
- NET+ARM-based software development board
- NetSilicon-supplied utilities
  - Compile and load HTML into C and firmware
  - Network downloading of on-board FLASH memory
  - Automated build environment
  - NVRAM device manager
- Raven hardware debugger
- 1 year software maintenance and technical support
- Hardware design review
- Development System training at NetSilicon

### NET+Works Standard Development System

Offers BSP-level support for Wind River's pSOS+ and VxWorks® real-time RTOSs.

The system includes:

- NET+Works networking software suite
- NET+ARM-based software development board
- 1 year software maintenance and technical support
- Hardware design review
- Development System training at NetSilicon

### Third Party Tools

- Wind River's pRISM+™ graphical development environment for pSOS+
- Wind River's Tornado development environment for VxWorks
- JTAG port In Circuit Emulation (ICE)
- esmertec's Jbed

[www.netsilicon.com/SoC](http://www.netsilicon.com/SoC)

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