NetSilicon
A Digi International® Company

NET+5&10T

Low Cost Ethernet/Internet-Ready ARM Processor

Features

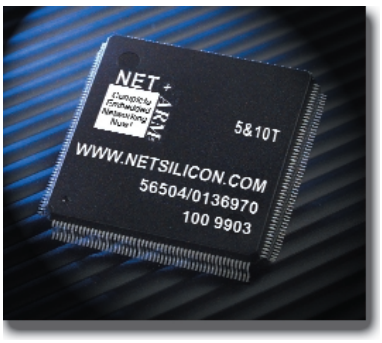
- 32-bit high performance ARM7 RISC processor
- Integral 10BaseT Ethernet MAC
- Large 2K Rx buffer for reliable network performance
- NET+DMA 5-channel DMA controller
- Includes complete, production-ready NET+Works networking software and comprehensive development support
- Complete scalability throughout the product line with pin and software compatibility
- Run-time binary license for Wind River's pSOS+™ RTOS included at no additional cost

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
- Totally integrated
- Production ready now

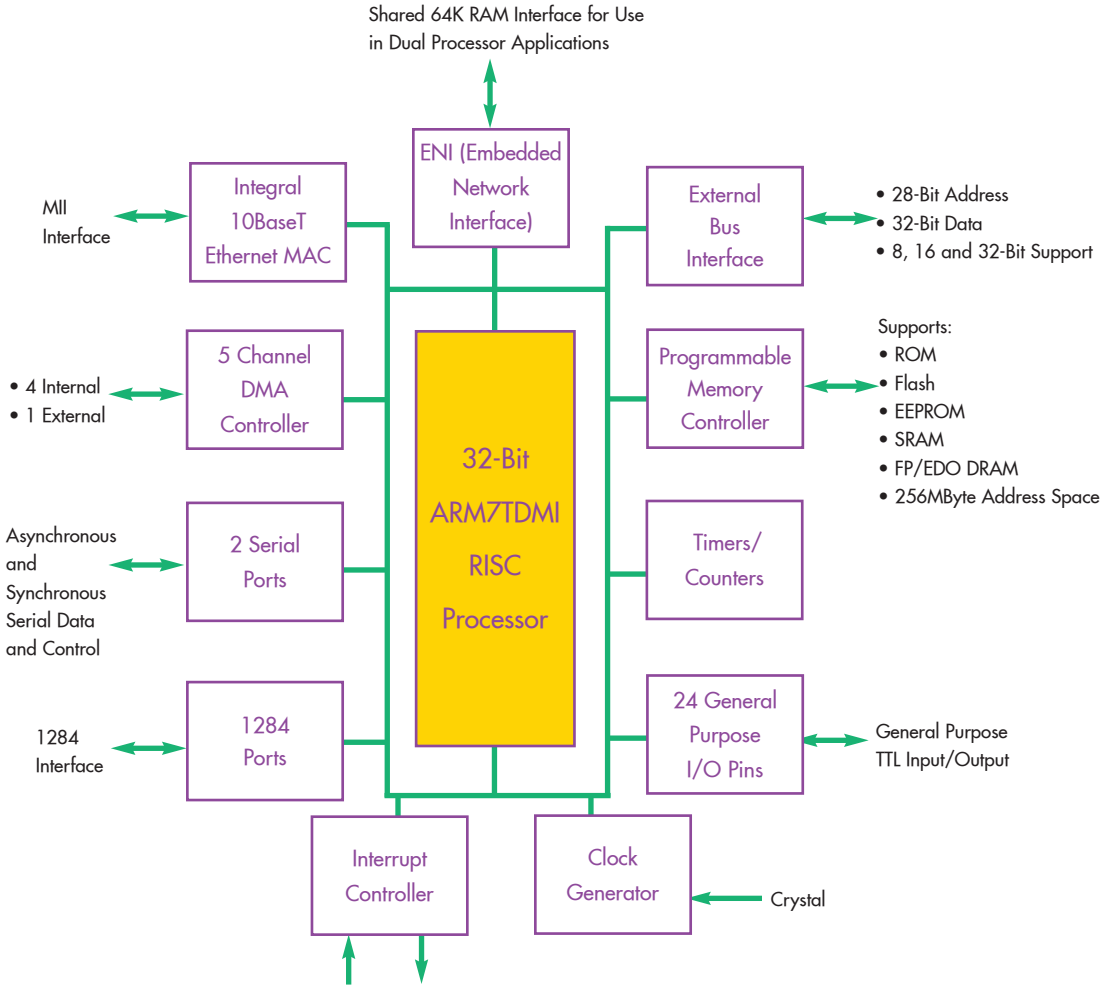
NetSilicon's NET+Works™ family of embedded networking solutions, when coupled with PHY and memory, contains all the hardware and networking software necessary to add Ethernet/Internet connectivity to virtually any electronic product design. The NET+Works solution saves your most important asset: **Time.**

NetSilicon is the only supplier to offer a comprehensive, fully integrated and tested embedded networking solution that provides all of the pieces needed to implement network connectivity, as well as a single point of technical support throughout the design process.



Using NetSilicon's NET+Works approach will result in significantly reduced development time and lower end product costs.

NET+5&10T Module Block Diagram



NetSilicon, Inc. • 411 Waverley Oaks Road #227 • Waltham, MA 02452 • (800) 243-2333 • Tel: (781) 647-1234 • Fax: (781) 893-1338 • info@netsilicon.com • www.netsilicon.com

NET+Works Software

NET+Drivers and Source Code
- 10BaseT Ethernet
- Serial (UART, HDLC)
- IEEE 1284
- DMA
- Interrupt controller
- Flash ROM

NET+Protocols
- TCP/IP
- PING
- PPP
- Telnet
- UDP
- RARP
- IGMP

NET+Services with APIs
- NET+Web™: HTTP client and server
- NET+Mail™: POP3 and SMTP
- NET+Data™: FTP client and server
- NET+Management™: SNMP MIBII and proxy agent
- NET+Install™: BOOTP, DHCP and DNS
- Complete documentation and working code examples

NET+Utilities
- NET+Web: Compile and load HTML into C and firmware
- NET+Flash™: Network download new flash images
- NET+Build™: Automated build environment
- NET+Configure™: NVRAM manager

Memory Requirements
- RAM 210Kb, ROM 300Kb

RTOS
- Runtime binary license for Wind River's pSOS+ RTOS included at no extra cost

Hardware

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

Integral 10BaseT Ethernet MAC
- 10Mbit 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

NET+DMA 5-Channel DMA Controller
- 1 dedicated to Ethernet receive
- 4 dedicated to P1284/ENI interface
- Flexible buffer management

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

Serial Ports
- 2 fully independent ASYNC UART 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, 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
- Supports internal or external bus arbiters

Timers
- Two independent programmable timers (200 µS to 500 mS)
- Programmable watch-dog timer (interrupt or reset on expiration)
- Programmable bus timer

General Purpose I/O
- 24 programmable I/O interface 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

Power Requirements
- Operating voltage: 3.0-3.6V
- Power requirements: 500mW max.

Development Support

NetSilicon Tools
- Development board
- Design engineering support
- Software maintenance
- Customer training

Third Party Tools
- Wind River's pRISM+™ graphical development environment, which includes:
  - ARM development toolkit
    - C, C++ compiler
    - Assembler, linker
    - Win95/NT GUI/project manager
    - Win95/NT simulator
    - Full source-level debugging
- JTAG port in-circuit emulation (ICE)

www.netsilicon.com