CONEXTOP
Net embed & Device Networking

Embedded Serial-IP SOC
CXT32SI1X NeChip Family

High performance, High reliability Single chip with ARM-based 32bit Core embedded. Offer up to 5 high speed UARTS,10/100M ethernet Abundant network protocols, support GPRS,WLAN,WCDMA Modules

It's not only a single chip, but the whole system that's ready for product

Key Features

- Core: ARM 32-bit ARM7TDMI
  - 70 MHz maximum frequency, 0.9DMIPS/MHz (Dhrystone 2.1) performance at 0 wait state memory access
  - Single-cycle multiplication and hardware division
- Memories
  - With 256k/512k bytes of flash integrated on chip, 32k bytes of boot room
  - Up to 256k bytes of SRAM
  - External memory interface
    With 16bits data and 24bits addressing
    Support external SRAM/PSRAM/Nor Memories
- Serial ports
  - Support up to 5 high speed UARTS with DMA
  - Hardware Flow control supported
  - Software Flow control supported
- Ethernet Interface
  - Integrate 10/100M MAC + PHY with DMA
  - Support auto sensing or user mode under
    100M Full/Half Duplex
    10M Full/Half Duplex
  - Hardware TCP/IP accelerator
- SDIO/SPI
  - Support external embedded WLAN modules with SDIO/SPI interface
  - Support expanding SD/MMC card
  - Support File system
- Low power consumption
  - Sleep, Stop and Standby modes
  - Regular / high speed mode switch
- Clock, Power supply
  - Single external 25M oscillator required
    Internal PLL to 60/70MHZ
  - Single power supply:
    3.2 - 3.45V

MARK: Some models may require another 1.8V Power supply for core.

System parameters:

- The only complete single chip with Ethernet and network system embedded
- Mutli-T RTOS embedded
- RS-232/485/422 support
- Embedded web server
- 10/100Mbit Ethernet – Auto-Sensing
- Field proven TCP/IP protocol suite and web based application framework
- Easy configuration through a web interface
- Easy customization of HTML web pages and configuration screens
- Interactive web pages through the use of Java applets
- E-mail alerts
- FTP server / client for file transmission
- SD/MMC card as local/remote file storage
- SSL/TLS support 128-, 192-, 256-bit AES or Tri - DES encryption (Optional)
- File system supported FAT12/26/32
- Extended operating temperature:
  -40 to +85û C Industrial Model
  0 to +75û C Commercial Model
- High-performance processor (55MIPS on 32bits RISC)
- Network overhead handled by NeChip
- Password protection
- Upgrade NeChip's bootloader and firmware over the network and Serial port
- 3.3V power
- Serial-to-10/100 Ethernet/wlan/gprs/WCDMA
  Offer 1-5 uarts, baud rate up to 921600bps

NeChip Series

Catalog	Uart	Ethernet	package
NeChip-L	1	10/100M	SOP 48pin
NeChip-R	1	10/100M	
NeChip	1-3	10/100M	
NeChip-E	4-5	10/100M	
NeChip-F	1-3	10/100M	

Please refer to NeChip Catalog for more details

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Oct 2008

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Technical Data Of NeChip Series

Category	Description
CPU, Memory	CPU:CXT32SI10/12/14/16/18 Memory: Rom: 256K/512KB + 32kB Boot SRAM: 80K/128/256KB Up to 8MB for NeChip-E series
Firmware Reset Circuit	Upgradeable via serial port or tftp Internal 200ms power-up reset pulse. Power-drop reset triggered at 2.7V. External reset input causes an internal 200ms reset.
Serial Interface	CMOS (Asynchronous) 3.3V-level signals Rate is software selectable (110 bps to 921600 bps) Offer 1/2/3/4/5 high speed serial ports
Serial Line Formats	7 or 8 data bits, 1-2 Stop bits, Parity: odd, even, mark, space, none
Modem Control	CTS, RTS
Flow Control	XON/XOFF (software), CTS/RTS (hardware), none
Programmable I/O	Up to 10 PIO pins (software selectable) sink or source 4mA max.
Network Interface	Ethernet 10BASE-T or 100BASE-TX (auto-sensing)
Compatibility Protocols Supported	Ethernet: Version 2.0/IEEE 802.3 ARP, UDP/IP, TCP/IP, PING/ICMP, DHCP, BOOTP, Auto IP,TFTP, SNTP ,TELNET ,HTTP，DNS,SMTP, PPP, LCP, PAP, CHAP, IPCP, PPPoE SSL/TLS,HTTPS ,SNMP(Optional) FTP Server/Client (Optional)
Protocol service	
DNS	Why dns? Actually, the remote IP is always dynamic (not fixed) when to transmit data through internet in the real application, how to get and refresh the remote ip when it has been chanced? Nechip can provide such solution for such application. NeChip can support dns to query for IP with a domain name point to your remote machine. Especially, nechip can auto-detect and diagnose the connection status in time, check and refresh the remote IP for new connection if the remote IP is changed. This function will solve the problem in the real internet application with dynamic remote IP
SMTP	Why SMTP? As we know that smtp is the basic protocol to transmit email. How is this protocol used in the real M2M application? NeChip series provide such protocol to trigger emails for alerts. When the terminal/customer's devices detect some warning/important evens, but the data connection is blocked or remote host is not available. How to report such warnings to the host or device manager. Emails will become the available way to notify the manager in time.
PPP	Why PPP? Ppp stacks include several protocols, such as LCP, PAP, CHAP, IPCP. ISDN: In the traditional industrial applications, remote devices are connected through telephone lines. Nechip can support such application by attaching an external modem to any uart of nechip, Then nechip will dial up automatically by internal ppp machine GPRS: GSM is the worldwide wireless communication network which can provide internet service for GSM terminals, so gsm cellphones can upload and download data from internet. In M2M applications, the distributed devices also can be connected and communicate with each other through gsm networking. It can reduce the cost on building wired channel. Nechip can support driver the external gprs module directly through serial port (Refer to application for more details)
PPPoE	Why PPPoE? Nechip can support connect to ADSL modem directly and dial up automatically without any router. Simple the method to internet and reduce the cost on an additional router As internet server.

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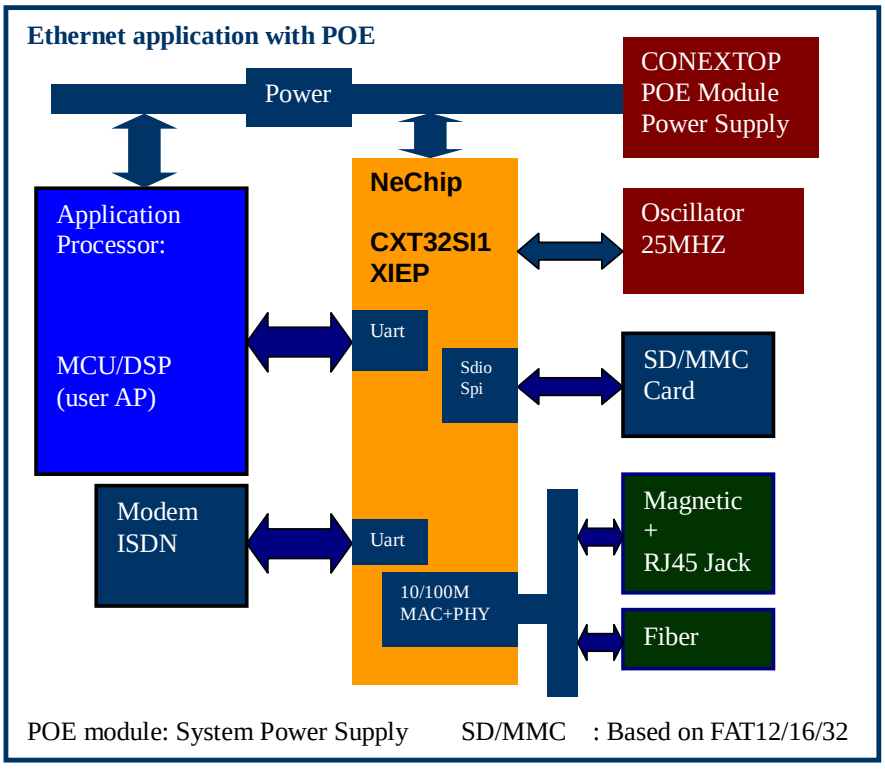
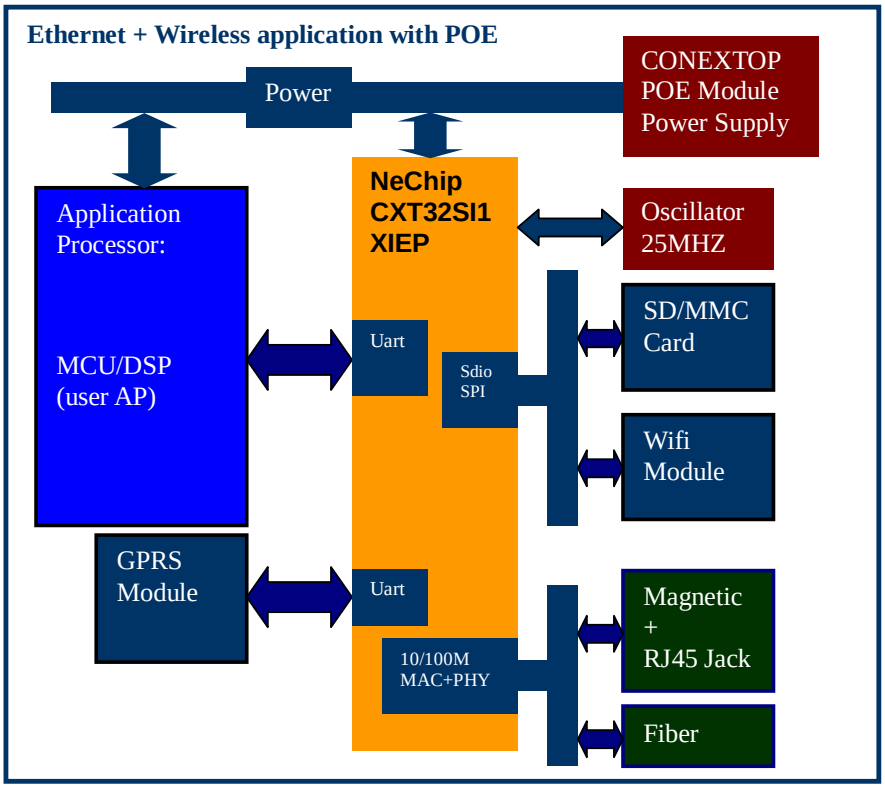
NeChip Embedded (Ready for use)

- **Make your MCU/DSP networking: Support POE and SD, PPP/PPPoE (ISDN/ADSL)**

Block diagram (Ethernet / Fiber)



Block diagram (Eth + Wireless / GPRS/WLAN/WCDMA)



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NeChip Embedded (Ready for use)

Features:

- Simple external circuit, just several analog interface IC
- Support 1-5 high speed serial ports
- Support RS232/485/422 controller (software selectable , Smart RS485 controller)
- Baudrate up to 921600bps
- Support POE
- Support 10/100M Ethernet
- Support sd/mmc card
- Abundant networking protocols: refer to technical data for detailed protocols
- Support DNS for dynamic remote IP
- Support PPPoE for ADSL application
- Support PPP/PPP+AT for ISDN and GPRS application
- Support WLAN (Driver special Wlan chipsets)
- Support multi-channel backup (eth + PPPoE)
- Provide http (web customized) server
- Provide telnet server
- Provide serial login mode
- Provide Virtual Com
- Provide Device manager based on windows

Applications

Industrial Automation

- PLC
- Network Sensor

Remote device management

- Remote Power switch
- Network Sensor

Medical / Healthcare

- Remote patient ward
- Network medical Sensor

Electrical Power

- Ammeter
- Remote Power monitor

Telecom and IT

- Mobile phone service networking
- Console device management
- Remote Telecom-device maintenance

Building automation and security

- Unmanned monitoring
- Warning backup network

Retail / POS

- Payment Terminal
- Gas Station

Manufacturing Automation

- Quality inspectionr/Monitor
- Safety monitor
- Fire / temperature monitoring / alarm

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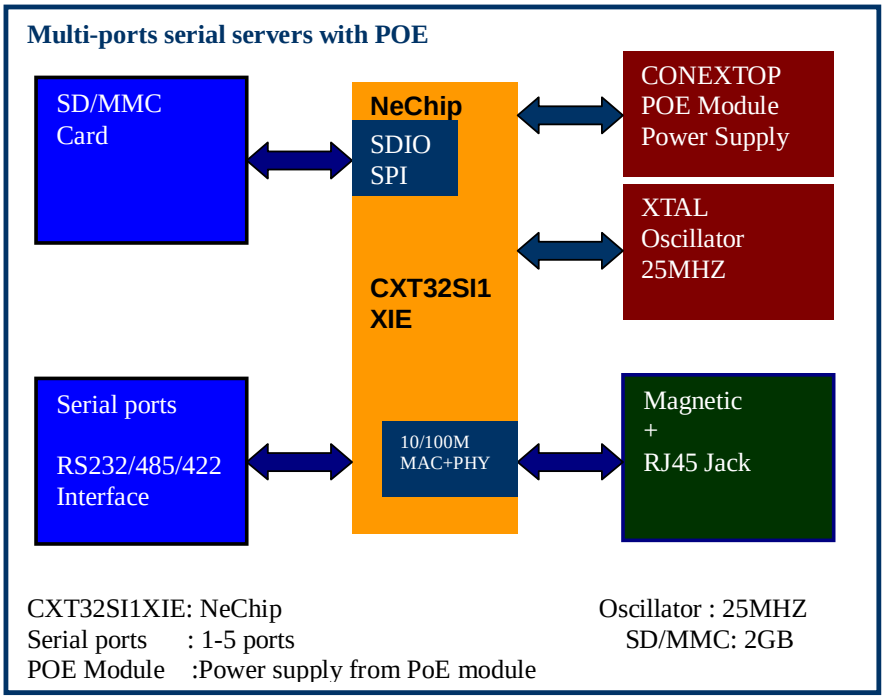
Solutions & Products based on NeChip

- **Serial to Ethernet Server: Support POE and SD, PPPoE (ADSL application)**

  Block diagram



Features:

- Simple external circuit, just several analog interface IC
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- Support PoE
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- Support DNS for dynamic remote IP
- Support PPPoE for ADSL application
- Support multi-channel backup (eth + PPPoE)
- Provide http (web customized) server
- Provide telnet server
- Provide serial login mode
- Provide Virtual Com
- Provide Device manager based on windows

Released Resource:

- Conextop provide the whole hardware development data for OEM/ODM companies
  Includes product schematic and pcb layout lib.
- Simple product development, Provide Technical support to release customized products efficiently.

Typical Products:

Multi-ports Serial to Ethernet converter: 1/2/3/4/5 ports server
POE serial server: 1/2/3/4/5 ports server
Smart serial server with SD / PPPoE for ADSL

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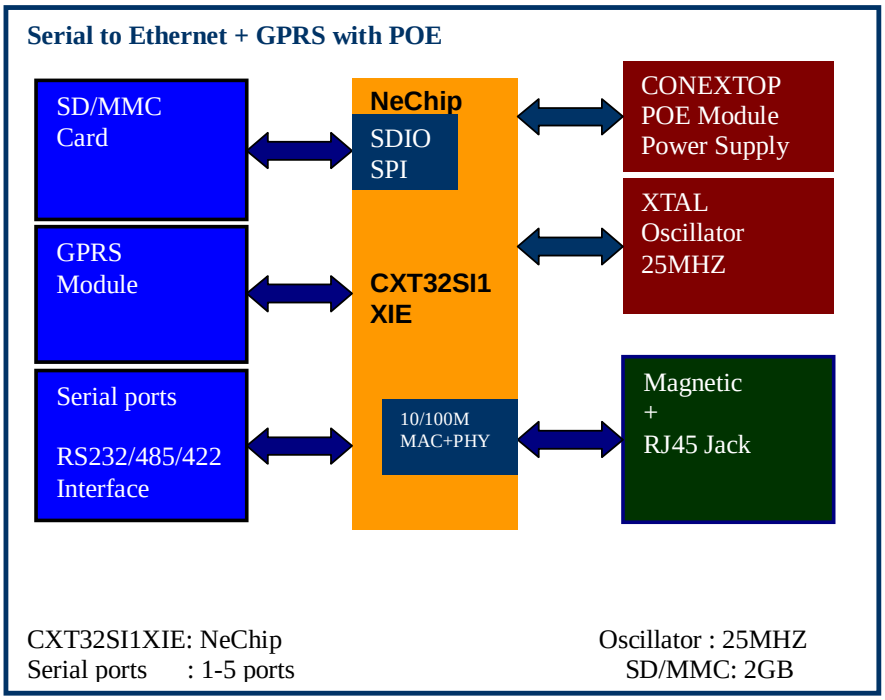
- **Serial to GPRS or GPRS + ETH Server: Support RS232/485/422**

  Block diagram



Features:

- Simple external circuit, just several analog interface IC
- Support 1-5 high speed serial ports
- Support RS232/485/422 controller (software selectable, Smart RS485 controller)
- Baudrate up to 921600bps
- Support PoE
- Support 10/100M Ethernet
- Support GPRS Module
- Support sd/mmc card
- Abundant networking protocols: refer to technical data for detailed protocols
- Support DNS for dynamic remote IP
- Support PPPoE for ADSL application
- Support multi-channel backup (eth + PPPoE + GPRS)
- Provide http (web customized) server
- Provide telnet server
- Provide serial login mode
- Provide Virtual Com
- Provide Device manager based on windows

Released Resource:

- Conextop provide the whole hardware development data for OEM/ODM companies
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- Simple product development, Provide Technical support to release customized products efficiently.

Typical Products:

Serial to GPRS server(GPRS DTU)
POE serial + wireless server: 1/2/3/4/5 ports server
Smart serial +wireless server with SD / PPPoE for ADSL
Network IP GPRS Modem with PoE

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NeChip Summary

NeChip series		NeChip-L/R		NeChip			NeChip-E		NeChip-F	
NeChip Models		-LX series	-RX series	-SX series	-DX series	-TX series	-E4X series	-E5X series	-FX series	-FEX series
Memory and Speed	Flash Code/Boot(KB)	128k /32	256k /32	256k /32	512k /32	512k /32	512k /32	512k /32	512k /32	512k /32
	SRAM(KB)	80	80	128	256	256	2048	2048	256	256
	Speed (MIPS)	55	55	55	55	55	60	60	60	60
Core and System	ARM7TDMI	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Multi-T RTOS	Y	Y	Y	Y	Y	Y	Y	Y	Y
Serial Interfaces	Ethernet Speed (M)	10/100	10/100	10/100	10/100	10/100	10/100	10/100	10/100	10/100
	Uart RS232	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Uart RS485/422	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)
	Max-Baudrate(bps)	38400	460800	460800 (*) 921600	460800 (*) 921600	460800 (*) 921600	460800 (*) 921600	460800 (*) 921600	460800 (*) 921600	460800 (*) 921600
	Serial port Number	1	1	1	2	3	4	5	1/2/3	1/2/3
Programmable I/O	PIO Number	2	2	2	4	6	8	10	2/4/6	2/4/6
Protocol stacks	ARP/IP/ICMP/DHCP /BOOTP/TCP/UDP	Y	Y	Y	Y	Y	Y	Y	Y	Y
	TFTP			Y	Y	Y	Y	Y	Y	Y
	SNTP	--	--	Y	Y	Y	Y	--	Y	Y
	Http Server (web customized)			Y	Y	Y	Y	Y	Y	Y
	Telnet Server	Y(*)	Y(*)	Y	Y	Y	Y	Y	Y	Y
	DNS	Y(*)	Y(*)	Y	Y	Y	Y	Y	Y	Y
	Smtp (Email Trigger)	--	--	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)
	PPP/LCP/PAP/CHAP /IPCP/PPPOE	--	--	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)
FTP service File system	FTP Server								Y	Y
	FTP Client								Y	Y
	FS (FAT12/16/32)								Y(*)	Y(*)
	SD/MMC								Y(*)	Y(*)
PPP Service &Wireless	ISDN (Modem)	--	--	--	--	--	Y	Y(*)	Y(*)	Y(*)
	GPRS	--	--	--	--	--	Y	Y(*)	Y(*)	Y(*)
	ADSL	--	--	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)	Y(*)
	WCDMA	--	--	--	--	--	--	--	--	--
Analog parameters	Power suppler(V)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
	I/O Tolerant(V)	5	5	5	5	5	5	5	5	5
PowerConsumption (mA)	10Base-T Activity	165	165	165	165	165	X	X	165	165
	100Base-T Activity	155	155	155	155	155	X	X	155	155
Operating temperature arrange C = 0 - +75° C I = - 40 - +85° C		C,I(*)	C,I	C,I	C,I	C,I	C,I	C,I	C,I	C,I
Package Option		SOP48 **Low Cost**	SOP48 **Low Cost**	SOP48	SOP48	SOP48	SOP48	SOP48	SOP48	SOP48

(*): Optional feature, please refer to the order number, Serial login/AT supported

Please refer to NeChip catalogs for more detailed models, download at http://www.conextop.com

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