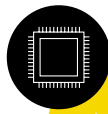# AXIS DEVELOPER BOARD

(The Fast Track to Networking Your Devices

Axis Technology

The Axis Developer Board introduces an effortless way to get acquainted with embedded Linux and Ethernet networking. With the highly integrated ETRAX 100 system-on-a-chip at its core, this prototyping board exposes the most commonly used ports of the ETRAX 100 making it possible to add network connectivity to your own hardware.

The Linux™ operating system enables rapid development

The recommended operating system for the Developer Board is Axis' port of Linux, optimized for embedded systems with a very small memory footprint. Using the Linux operating system gives you access to a wide range of open source applications. Porting existing Linux applications to the developer board is in many cases done by simply recompiling the existing code for the ETRAX platform.

Application development

The Developer Board is well suited for application development in a wide range of industries. Some areas where this technology can be used are:
– Industrial Ethernet applications
– Telecommunications
– Home and building control
– Networking of medical monitoring equipment
– Freight and logistics control
– Networked sensors

Network upgradeable

The software of the developer board is upgradeable over any standard TCP/IP network using FTP. When developing applications, you simply compile them on your Linux workstation and transfer them to the developer board for final testing.
A unique network boot mode for the ETRAX 100 is also available, allowing you to remotely boot any ETRAX 100 based product over the network - even if there is no code present in the product itself.

Develop your own *Bluetooth*™ applications

Axis was the first company in the world to release a Bluetooth protocol stack for Linux under the GNU General Public License. With an external *Bluetooth* module supporting the HCI UART transport layer connected to one of the serial ports on the developer board you can quickly have your own *Bluetooth* applications up and running.

The ETRAX 100

Designed to meet demands for low cost, easy implementation and superior network performance, the ETRAX 100 is Axis' fifth-generation optimized system-on-a-chip solution for putting peripherals on the network.
The ETRAX 100 is available as a component directly from Axis if you want to design your own hardware. We use the chip in all of our existing products, which ensures our long-term commitment to the ETRAX platform – an architecture already proven in more than one million Axis products installed around the world.

More Information

For more information on Axis' technology offerings, please check the http://developer.axis.com website. You can also send an e-mail to technology@axis.com with any questions you may have.
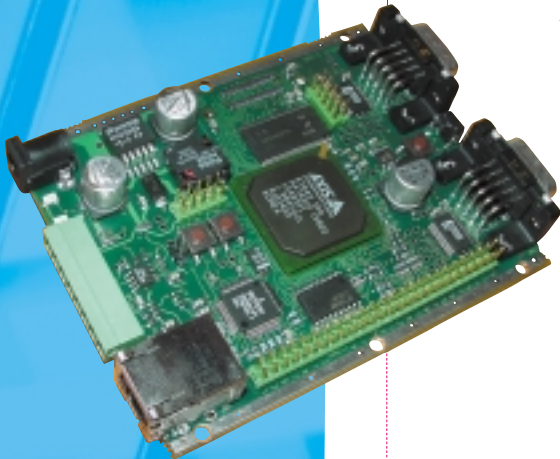
Axis Technology

Technical Specifications

LINUX VERSION

Axis' Linux port is based on the 2.0.38 Linux kernel modified to work with MMU-less processors as developed by the uClinux project.

APPLICATIONS

Axis has already created and ported some applications for you to use in your own products.

JFFS

JFFS is a filesystem designed by Axis to be used on flash memory chips. It implements a log-structured filesystem which is always consistent no matter crashes or power-downs - and it does not require a file system check upon boot.

Boa

High performance web server with support for CGI and SSI.

Telnetd

Simple TELNET server - allows you to log in on the developer board.

Sftp

Lightweight FTP server(sftpd) and client(sftp-client) applications for transferring files.

Ping

A standard ping utility - measures round-trip-delays and packet loss across network paths using the Internet Control Message Protocol (ICMP).

Ash

Ash is a fairly small Bourne compatible shell, which offers the power and flexibility of shell scripting for an embedded system.

Sash

Stand Alone SHell, another low-footprint shell with many built-in commands. While it doesn't have solid script support it's still good for inter-active use.

Editcgi

This is a simple CGI based editor and file browser.

Easyedit

An easy to use editor with many pop-up menus and a generally helpful user interface.

Smtpclient

Simple SMTP client. The program takes an email message body and passes it on to an SMTP server.

Dnrd

Simple proxy name server. It is meant to be used for home networks that can connect to the internet using one of several ISP's.

Sntpdate

Simple Network Time Protocol (SNTP) client. The client sends a query to an NTP server for a time, and sets it.

SYSKLOGD

This package provides reliable logging of messages received from programs and facilities and OS messages.

HELPER APPLICATIONS

The following applications are present in the developer board and are a great help during developing and testing.

RAMTOOLS

Contains utilities for building and compressing an ext2 file system image on the host computer, and for decompressing the image on the target at runtime.

NET-TOOLS

Route and ifconfig are similar to the standard Unix programs, but with only the neccessary parts for AF_INET(TCP/IP).

Hwtest

Applications for testing of IO, EEPROM, real time clock and serial ports.

Elvis-Tiny

A small editor that supports most of the common vi operations.

Tcptest

TCP client and server test program.

DEVELOPER TOOLS

COMPILER AND DEBUGGER

The C/C++ cross development tools used are based on the GNU CC from Free Software Foundation. These tools run on Linux and the SUN SPARC platforms. The GNU debugger gdb-cris supports ETRAX 100 based platforms.

LOGIC ANALYZER

Specially designed logic analyzer from Axis Communications enables low-level software debugging.

BOOT LOADER

The boot loader is a program for Linux, which boots ETRAX 100 over the network with the program you want to run.

HARDWARE FEATURES:

CPU

100 MHz 32 bit RISC CPU with a peak performance of 100MIPS.

ETHERNET

10/100 Mbit Ethernet connection.

PARALLEL INTERFACE

2 Parallel ports supporting various of printer protocols, including

– IBM XT/AT compatible Centronix

– IBM PS/2 compatible Centronix

– Hewlett-Packard Fast Mode

– IBM Fastbyte

– Bitronix, compatible with IEEE 1284 and HP Boise specifications (mode byte, nibble and ECP)

SERIAL INTERFACE

2 RS-232 serial ports

1 RS-485/RS-422 serial port

1 Serial debug port

FLASH

2 Mbyte of non volatile flash memory.

RAM

8 Mbyte DRAM

POWER

External power supply: 9-24V AC or DC
On board power: 3.3V
Power consumption: max 3 VA

LOGIC ANALYZER

The developer board contains an interface for connecting Axis logic analyzer for easy low level debugging etc.

RTC

On board real time clock.

EEPROM

2 kbyte I2C EEPROM

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