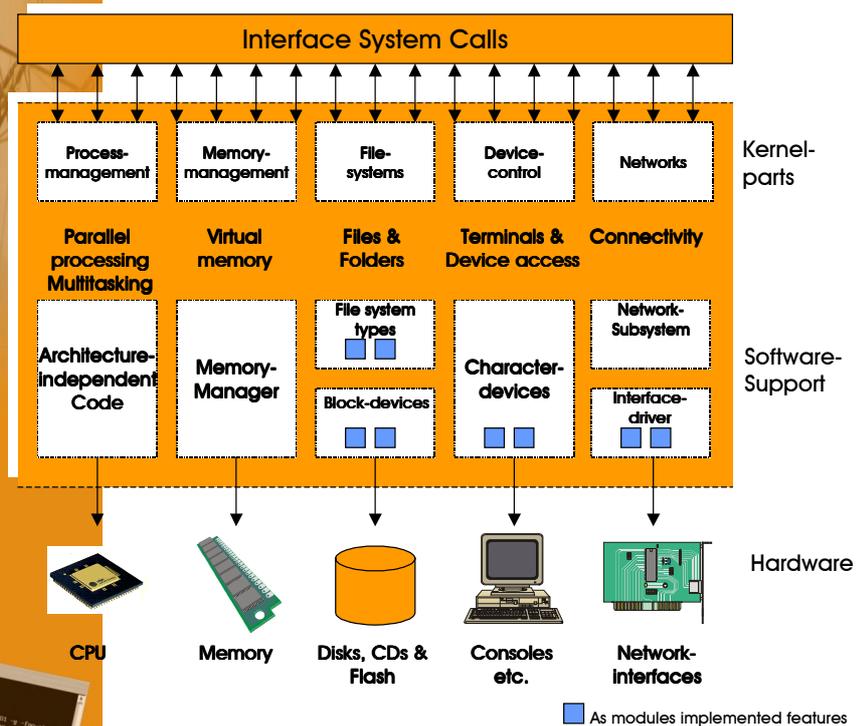


hyNet 32XS Linux-Tools

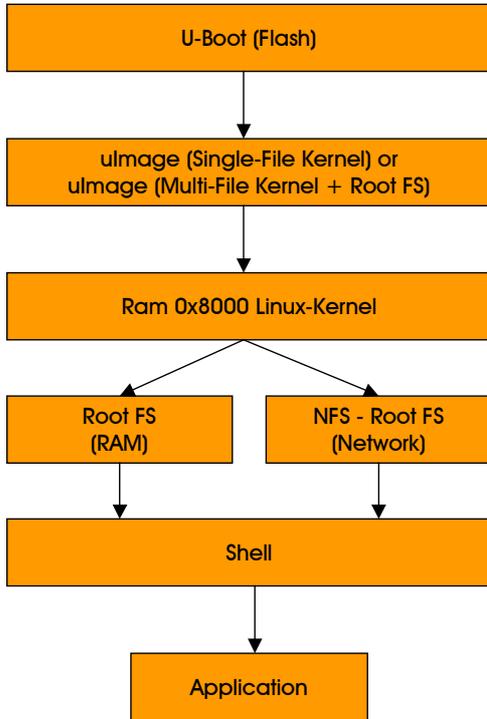
- Development Environment under Linux for the Hyperstone hyNet 32XS Communication Gateway Controller



hyNet 32XS Linux-Tools

iAd offers a comprehensive Development Environment for your embedded software and hardware system design: hyNet 32XS Linux-Tools.

Boot Process using hyNet 32XS Linux-Tools:



The hyNet 32XS evaluation board(s) will come with a preloaded hynet 32XS version of the U-Boot 1.1.1.

The U-Boot starts from flash after the hyNet board is powered up. It communicates via the serial line using COM H1 in a console like matter. It provides several commands to manipulate the board's memory (SDRAM, flash, nvSRAM). It can load binary files via the serial line using the kermi protocol and start standalone applications.

The U-Boot also handles the two ethernet interfaces (LAN 1 and 2) for loading (Kernel) images (multi/single file, un/compressed) using bootp or tftpboot and is able to boot the image, either on user command or automatically after the board was powered up.

The U-Boot is configurable with its integrated environment which can easily be accessed by the implemented commands.

■ HyNet 32XS Linux

• Linux Kernel

A Linux Kernel has been ported to the hyNet32XS evaluation board. It is currently based on the uClinux Kernel release 2.4.20. Up to now there is support for serial line communication (used for serial console) and the on chip ethernet MACs (used for NFS root -filesystem) of the hyNet32XS. The device drivers may be accessed as with all Linux Kernels via device nodes in the root-filesystem and the appropriate systemcalls, which are defined by the Linux Kernel API.

• Toolchain

The toolchain to build the Linux Kernel and applications for it has been ported by Hyperstone. It consists of:

- GNU C-Compiler (Version 2.95.2)
- GNU binutils package (Version 2.12.90)
- GNU debugger (Version from 26.07.2002).

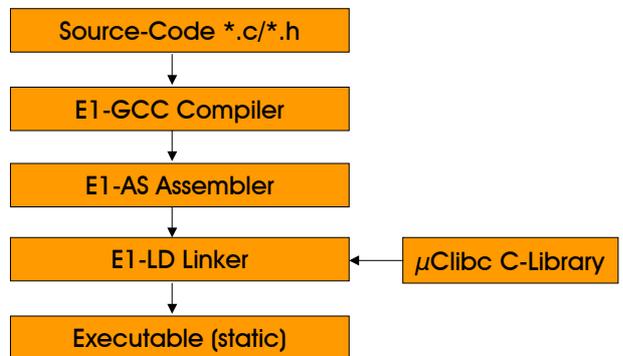
As with standard Linux Kernel releases the Kernel may be configured with commandline or the comfortable ncurses-based configuration dialogues.

For U-Boot support the mkimage tool is provided with the previously mentioned U-Boot release.

• C-Library

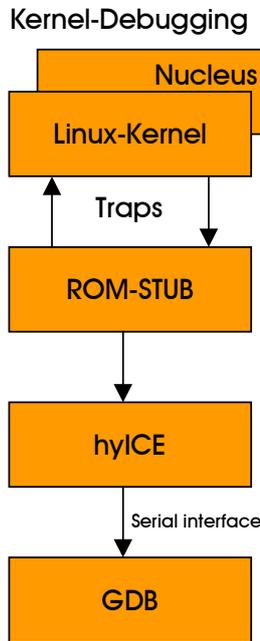
In order to build applications for Linux a C-Library must be provided. The C-Library used here is the uClibc (version 0.9.19), which is a standard C-Library replacement for the usual glibc in embedded Linux.

GNU-Toolchain: Standard Operation



- Kernel-Debugging Romstub

For debugging the Linux Kernel with the GNU Debugger a romstub has been created. It communicates through the hyICE Interface, on the hyNet32XS evaluation board, with a host PC running the GDB.



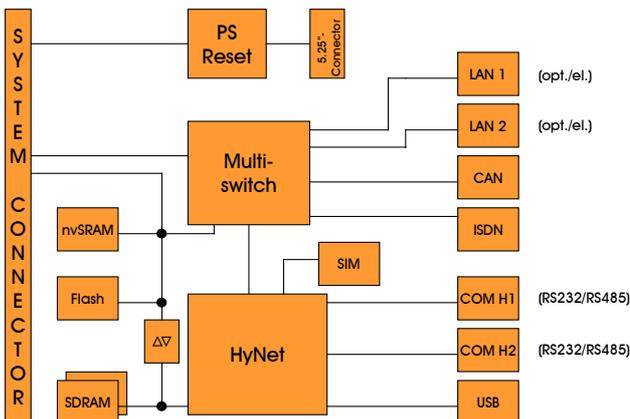
- Multiple Interfaces
 - 2 x Ethernet (optical / electrical)
 - 2 x RS232/RS485
 - USB 1.1
 - CAN
 - ISDN
- Power supply via standard PC power pack
- Socket for Processor (optional)
- Extension possible by system connector
- Flexible configuration by multi switch
- Memory
 - 2 banks SDRAM
 - Flash
 - nvSRAM
- Integrated smart card reader

Overview interface drivers:

Driver for	implemented	tested	planned
LAN	X	X	
CAN			X
ATM			X
PCM			X
COM	X	X	
Serial	X	X	
USB			X
ISDN			X

- hyNet 32XS Evaluation Board

...provides the opportunity for software verification and development for the hyNet32XS processor with all its interfaces and to create customer-designed applications based on it. The processor can easily be accessed configured using a personal computer, the provided software and a UART adapter (eg. a Hyperstone hyICE Card). A multi-switch allows very flexible routing of the processor's GPIO pins, either to the physical interfaces or the system connector. Using the Evaluation Board as a project base makes the easy development of any extension card a possibility.



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