

PHILIPS

High-Performance Low-Cost IP Set Top Box

Making low-cost high-performance Consumer Electronics
with
Philips Nexperia™ media processors

This set top box design combines the performance of Nexperia silicon with versatility and cost-of-ownership of Linux software & applications. Hence the featuring of current high-end digital products, like connected-home servers, internet browsing and VoD/MPEG-4 and MHP/OCAP now become available at a unprecedented price/performance ratio.



The programmability and performance of Nexperia PNX1302 silicon devices ensure field-upgrade of additional revenue generating services, such as Surveillance or Video Telephony through a simple software download.

The use of Linux makes a wealth of software applications and device drivers available to create competitive edge. Cost-of-ownership of such platform is in control due to wide availability of standard Linux programming

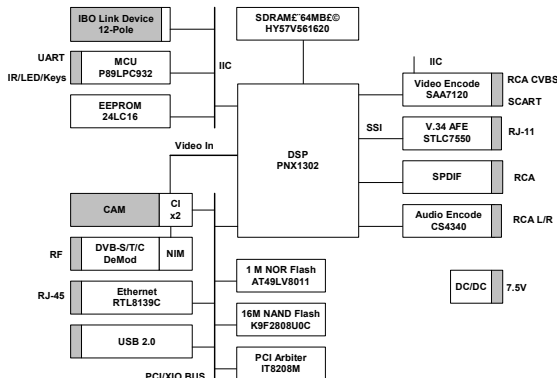
This STB which is now on demonstration has the following hardware features:

- single PNX1302 SoC running Linux DVB
- Option for DVB-T, DVB-S or DVB-C tuner
- Common Interface based Conditional Access
- Connectivity over 100Mbps ethernet, V.24 Modem and USB 2.0

The use of software based signal-processing (e.g. codecs for a/v compression / decompression, soft modem for V.24) yield a low-cost yet very flexible platform.

The hardware design is set up in a modular way so that a broad range of applications in the field of DVB and IP video services can be supported. The design can be adapted to specific customer requirements. Adaptations may involve integration of a Eurodocsis cable soft-modem, ADSL modem and many more.

The demonstrated Nexperia set top box runs a software stack for rendering multicast and unicast MPEG-2 and MPEG-4 under control of a HTML browser. VoD with trick modes are implemented.



Some examples of applications in progress of integration are:

- USB 2.0 driver for WebCam, allowing services like Surveillance or Video Conferencing
- Apache Web Server, to realize connected-home applications like Home Automation and remote Surveillance
- 802.11 USB driver, NFS connectivity and MP3/DiVX codec, allowing to playback PC content in the living room environment
- Network Routing between the Ethernet interface and a USB-connected in-home network

The reference design is planned to be available for commercial deployment Q1 2004.

It will be supported by a Software Development Kit (SDK), which will be offered in two tiers:

- an application tier, allowing to create and test MHP and HTML services. The use of the Linux environment brings unprecedented level of applications debugging facilities, such as broadband connectivity over Ethernet with the development environment, and JAVA source-level debugging.
- A DVB-Linux tier, targeted at setmakers, who may want to expand the reference design with own competitive edge applications, either coming from the Public Domain or own-developed.

The software stack can be expanded into a MHP profile-2 using Ethernet return channel. The MHP builds on Sun CVM pJava implementation and shows Nexperia's superior performance level in Java execution and graphics capabilities. This is evidenced by the Caffeine benchmark, which outperforms current competing MHP platforms with at least a factor 2. This makes this reference design particularly suited for retail distribution in combination with service providers such as Telephone Operators, who can build value-added services like VoD on top of the standard DVB/MHP public broadcasts.

Furthermore, the software applications will be expanded with standard Linux applications and drivers, allowing the reference design to be used as carrier for connected-home services.

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