

# Nexperia Network Media Player Reference Design

Complete hardware and software solution for building next-generation digital media adapters

Current digital media adapters (DMAs) let consumers enjoy music, photos, and videos stored on home networks on their TVs and entertainment centers. The Nexperia™ Network Media Player Reference Design gives manufacturers these standard features, plus the ability to access PC and Internet applications on TVs throughout the home.



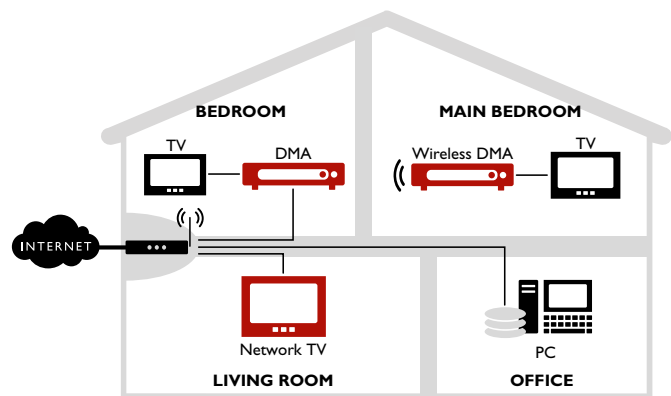
For building a variety of unique DMA products supporting both media content and applications, the Nexperia Network Media Player Reference Design offers CE manufacturers a complete, flexible hardware and software platform. Network TVs and DMAs created with the Reference Design communicate wired or wirelessly with home media server(s) to stream and play back rich content and applications. The Reference Design's high-quality digital audio and video decoding, exceptional picture quality, and sophisticated software offer:

- streaming or downloading of high-quality music, videos, and photos from a PC, the Internet, digital video recorders (DVRs), or network-attached storage (NAS) devices to the TV or other media player devices using a remote control
- browsing online multimedia content in real time from media players located throughout the house

## Key features

- Complete, ready-to-manufacture reference design includes Nexperia PNX1502 media processor-based reference board and software
- Supports both digital media content and remote applications
- Sophisticated media client software from Mediabolic
- Handles popular digital media formats including DivX®, MPEG-1/2/4, AVC/H.264, WMV9, MP3, AAC, JPEG, and more
- Robust image enhancement features, motion-adaptive deinterlacing, and high-quality upscaling
- Supports video resolutions up to 720p or 1080i via component and HDMI outputs
- Versatile wired (USB, 1394, Ethernet) and wireless (802.11a/b/g) connectivity to home LANs
- Customizable user interface (UI) with international language support
- Software designed to DLNA 1.0 DMP guidelines ensures cross-product interoperability

The Reference Design leverages the Nexperia PNX1502 media processor to render the most popular and emerging media formats. Its robust software enables easy navigation and playback of large collections of



Network TVs or DMAs created with the Reference Design communicate wired or wirelessly with media servers in the home to make rich content and applications available on the television.

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# PHILIPS

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media and applications. Manufacturers can tailor display and media processing functionality to differentiate a variety of appealing players with various feature sets and price points. The Reference Design can also be integrated into a television with direct support for the display's native resolution.

## Exceptional picture/video quality

The Reference Design utilizes the PNX1502's advanced image and video enhancement capabilities to deliver exceptional picture quality on LCD displays. State-of-the-art motion-adaptive de-interlacing with optional edge detection and correction eliminates the need for an external chip to support progressive output. An on-chip graphics engine accelerates high-speed 2D graphics. An integrated TFT LCD controller enables direct output for integration into LCD and plasma TVs and supports display resolutions up to WXGA TFT LCD. For generating high-quality video on internal or external displays, the PNX1502 handles high-definition video scaling, linear and non-linear aspect-ratio conversion, anti-flicker filtering, brightness control, and a long list of video quality enhancements.

## Robust media player software

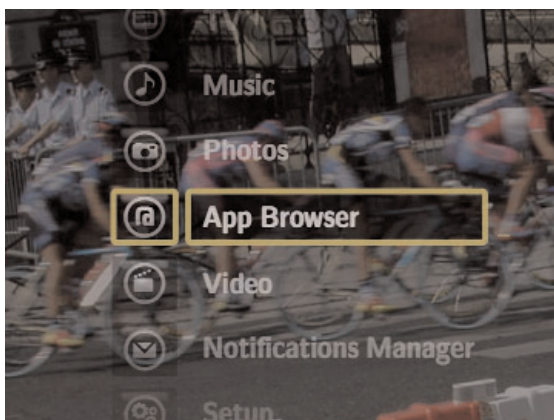
The Reference Design includes a complete, production-ready, binary software package from Mediabolic. Optimized for a lean-back user experience, the media player's UI lets users browse music, photo, and

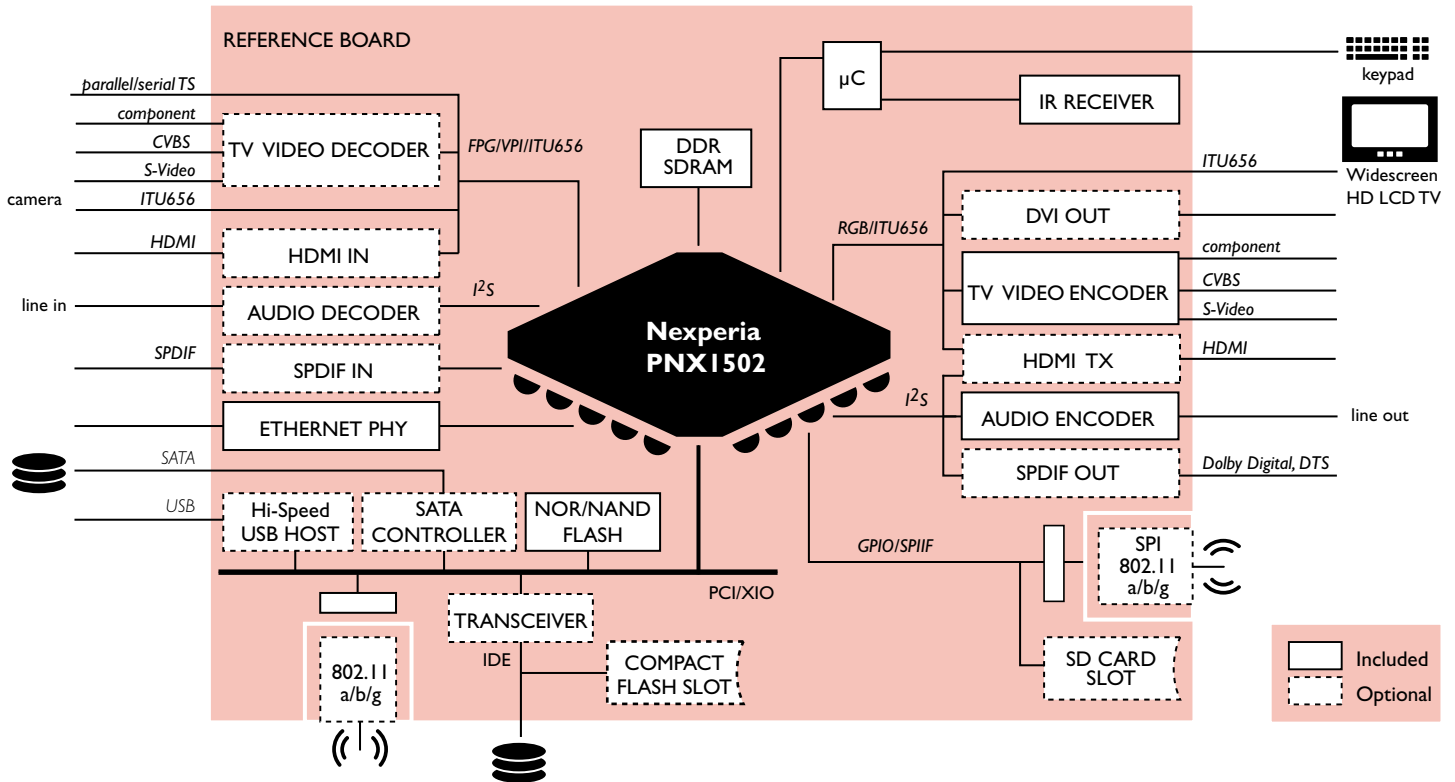
video files and access a wide variety of applications from the PC or Internet, such as sports scores, news, and weather reports—all at the touch of a remote control.

Available separately from Mediabolic, media server software enables the media player(s) to access content stored on a PC, NAS, DVR or other server devices. The server application aggregates media content sources into one unified directory before presenting it to the user on the TV screen. Both media player and server applications support the UPnP standard, adhere to Intel® Networked Media Product Requirements (NMPR) specifications, and are designed to DLNA guidelines. Premium content playback is enabled by support for DTCIP and WMDRM10-ND.

## Software customization and development tools

The media player software is fully customizable, with a flexible UI skin system and middleware plug-in API for personal, OEM, or third party feature extension. It includes input and display support for international languages. Mediabolic offers software customization services as well as a Source Code Software Development Kit (SDK) that enables developers to extend the UI or any other aspect of the reference design software.





## Technical specifications

### Reference design

|                      |   |
|----------------------|---|
| <b>Hardware</b>      | Reference board; remote control, cables |
| <b>Software</b>      | Complete production binary              |
| <b>Documentation</b> | User guide, schematics, Gerber files    |

### Reference board

|                        |   |
|------------------------|---|
| <b>Media processor</b> | Nexperia PNX1502; TriMedia CPU  |
| <b>Memory</b>          | 64 MB DDR SDRAM (2x32)  |
| <b>Flash</b>           | 32 MB NAND Flash  |
| <b>PCI/XIO bus</b>     | 32-bit, 33-MHz  |
| <b>TV codecs</b>       | Philips SAA7104, encodes PAL or NTSC up to 720p/1080i; Philips SAA7118 decoder; PAL or NTSC   |
| <b>Audio codecs</b>    | Philips UDA1334 encoder; Philips UDA1361 decoder  |
| <b>Connectivity</b>    | miniPCI slot and card for 802.11 a/b/g; SPI slot for 802.11 a/b/g; Philips ISPI560 Hi-Speed USB host controller; Ethernet 10/100 PHY            |
| <b>Storage</b>         | <i>HDD</i> IDE and SATA headers<br><i>Portable Flash</i> SD and Compact Flash slots   |
| <b>Audio I/O</b>       | line in, SPDIF in; line out, SPDIF out  |
| <b>Video I/O</b>       | <i>input</i> CVBS, S-Video, component, HDMI<br><i>output</i> CVBS, S-Video, component up to 720p/1080i, DVI, HDMI up to WXGA (1280 x 768 60 Hz) |

|                       |  |
|-----------------------|--|
| <b>Display I/O</b>    | 18- or 24-bit, RGB LCD interface               |
| <b>User interface</b> | 8-bit microcontroller for front panel keys, RC |

### Supported media formats

|                       |  |
|-----------------------|--|
| <b>Video decode</b>   | MPEG-1, MPEG-2, MPEG-4 (SP,ASP), DivX-3/4/5, AVC/H.264, WMV9 |
| <b>Video encode</b>   | MPEG-1, MPEG-2, MPEG-4 (SP), DivX video                      |
| <b>Audio decode</b>   | MP2, MP3, Dolby Digital®, AAC, WMA9                          |
| <b>Audio encode</b>   | MPEG-1 L2, MP3   |
| <b>Image decode</b>   | JPEG, GIF, BMP, PNG  |
| <b>Communications</b> | TCP/IP, Ethernet, 802.11x                                    |

### Software and interoperability

|                         |   |
|-------------------------|---|
| <b>DRM</b>              | DTCP-IP, WMDRM10-ND   |
| <b>Standards</b>        | Designed to DLNA 1.0 DMP guidelines<br>UPnP AV 1.0 MediaServer, Control Point<br>Meets Intel NMPR 1.0 specifications<br>Intel eXtending Remote Technology (XRT) 2.2 |
| <b>Language support</b> | <i>input and display</i> English, Western European<br><i>display</i> other Unicode languages including Chinese, Japanese, Korean, Thai, and Arabic                  |

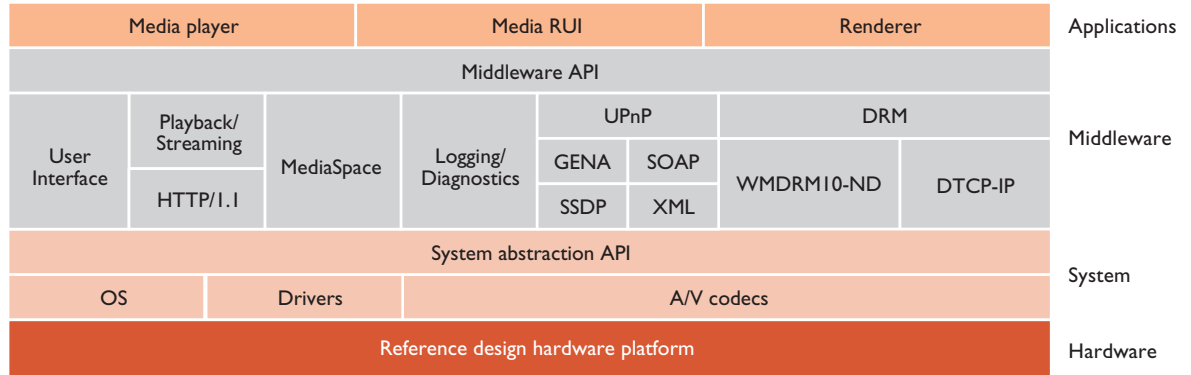
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Reference Design  
Software Architecture



## Mediabolic, Inc.

Mediabolic is a leading provider of end-to-end software solutions for connected entertainment products. Mediabolic's technologies can be embedded in products like televisions, set-top boxes, and NAS devices, allowing consumer electronics and PC manufacturers to extend and differentiate their products. Using a standards-based open architecture, Mediabolic's technology has enabled its customers to ship award-winning solutions across diverse platforms to the consumer market. Founded in 1999, Mediabolic is located in San Mateo, California. For more information, visit [www.mediabolic.com](http://www.mediabolic.com).



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