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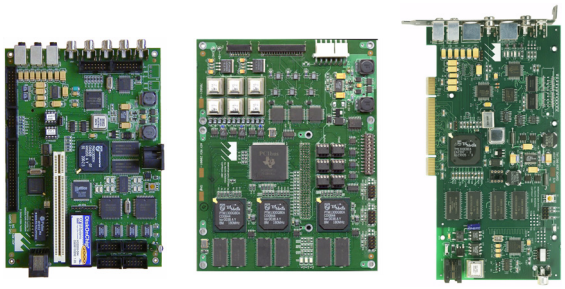
http://www.mds.com



pnx1300 TriMedia/Nexperia Development Software

DEVELOPMENT SOFTWARE OPTIONS FOR PNX1300 BASED TRIMEDIA/ NEXPERIA HARDWARE

This info-sheet summarizes the offerings for pnx1300 Nexperia (formerly called TriMedia) software and answers some typical questions. Note that some issues discussed here may have changed since this was written, please contact the MDS sales staff if you have further questions.

The following applies only to pnx1300 software. Tools and libraries for the pnx1500 are separate from those for pnx1300.

Where else to get more information or help:

MDS website:
http://www.mds.com The MDS Nexperia support page

Philips Nexperia Website:
http://www.semiconductors.philips.com/platforms/nexperia/index.html

Philips Nexperia Support Website:
http://www.support.trimedia.philips.com/

Yahoo TriMedia eGroup:
http://groups.yahoo.com/group/trimedia/

Complete details are best found in the documentation package delivered with the tools. All of the Nexperia hardware and software manuals are supplied as pdf files, some can be found on the Philips Nexperia Support Website.

Philips Packages by Name

DVP

[Copied from the Philips IADK2.0 SP1 release notes, as rewording this is futile.]

> "...DVP stands for Digital Video Platform. It is the software architecture used for all Nexperia chips. Nexperia is the marketing term that brands all the products that use DVP architecture. DVP is an evolution of TSA architecture for the next generation of Digital Video products. It provides means for data streaming, the TSSA (TriMedia Streaming Software Architecture), as well as inter-processor communication and advanced OS abstraction and memory management. The switch to the DVP architecture requires TCS2.2DVP compilation tools as well as minor modifications to all existing software components and application programs."

NDK

Nexperia Development Kit. This is the basic set of tools needed to develop Nexperia applications: compiler, linker, debugger, assembler, librarian, and profiling tools. This subset of the NDK is sometimes referred to as the TCS.

The NDK includes some basic library functions as well, such as the TSA/TSSA core and peripheral (audio, video) libraries, and the 2D drawing library.

The current NDK version is 2.2, with Service Pack 2.1 (SP2.1), released in May 2003. This is the minimum version needed for using the IADK 1.0, and at the time of writing of this data sheet, is the release "officially" supported by MDS.

For users of the IADK 2.0 libraries, a later release, called SP5, is required. It was released in November 2003. However, SP5 is very different than SP2.

SP5 uses what Philips calls SDE2 (not to be confused with the SDE described below). SDE2 is a "style" of building tools and applications that conforms to an internal Philips standard called "MoReUse" (seriously, we're not making this up). IADK 2.0 SP1 is based on SDE2 1.5 (again, this has nothing to do with the 'old' SDE that TriMedia developers are familiar with).

To be able to use the SP5 version of the NDK requires understanding the SDE2 environment. Also, the old SAS (StandAlone Subsystem) directory added in NDK 2.2 is gone; many of the tools are gone/replaced and new build methods are used.

For people familiar with SDE 2.2 or NDK 2.2 SP2 tools, the jump to SP5 will require some effort - effort that is probably only worth it if:

- you require IADK libraries
- you plan to migrate to pnx1500 (the pnx1500 toolset is also based on SDE2 build formation).

One final note: If you purchase NDK 2.2 SP5, the release notes will describe it as being NDK 2.2 SP4. However, if you look at the installation log you can see it is really SP5.

TCS

TriMedia Compilation System. In rough terms, the collection of executables that converts source into machine code. Both NDK 2.2 SP2.1 and NDK 2.2 SP5 use the same TCS 2.2DVP version.

TriMedia/Nexperia software development tools

SDE

Software Development Environment. Not be confused with SDE2, a Philips software standard.

SDE is the old name for what is now the NDK, and also sometimes called the TriMedia Compilation System, or TCS (but these days TCS now means *just* the compilation and related tools). The NDK contains updated examples for more platforms, but the tools are basically unchanged. The last version was SDE 2.2. SDE 2.2 does not work with any version of the IADK.

IADK

Integrated Application Development Kit. This is what used to be called the "Apps-CD" in the old days. All of the libraries and examples have been cleaned up, built, and tested with the NDK. Note that in some contexts (i.e., Philips) people say IADK and mean IADK+NDK. We will always refer to each separately. The current IADK version is 1.0, with Service Pack 2 (SP2) required (released with the NDK SP2.1 in May 2003).

However, new orders for IADK library components will ship with the newer IADK 2.0 SP1 version, which uses NDK 2.2 SP5. This is done because Philips updated almost all of the IADK libraries between version 1.0 and 2.0 of the IADK.

Which Package?

MDS currently supplies NDK 2.2 SP2.1, unless an IADK library is ordered, in which case NDK 2.2 SP5 is provided. Once full support for SP5 is worked out (probably June/July 2004) that will become the default package.

Other fine print

An upgrade from SDE 2.2 to NDK 2.2 SP2.1 is available from MDS. (SDEs prior to 2.2 are not upgradeable, i.e. Philips requires you to buy the NDK at full price). SP2.1 will be upgradeable to SP5 for a nominal charge.

Receiving an upgrade requires return of the current CD (this is a Philips requirement).

The IREF board supplemental software (BSP, examples) were originally setup to be rebuilt with the SDE2.2 environment and do not build "out of the box" with SP2.1. It is also buildable with SP5. Note that the BSP and examples are supplied with source and executable forms, so you can rebuild them to match your specific development environment if it is non-standard.

Don't forget JTAG

To develop programs on the DVE-2 or on custom hardware, a JTAG debugger is required. MDS has a new version of the Nexperia JTAG debugger for the PCI bus, this debugger is only supported for use with the NDK.

Libraries

Philips Libraries (IADK)

Information on the Philips libraries can be found on the MDS website, in the libraries section. The current version is IADK 2.0 SP1, which requires NDK 2.2 SP5 (see above)

DResearch Libraries offered by MDS

MDS offers a number of video codecs (H.263+, MJPEG) from DResearch. These are being updated as needed to support use with the NDK.

Moonlight Cordless MPEG2 Libraries offered by MDS

MDS offers the MPEG2 video encoder and decoder. These are being updated as needed to support use with the newer NDK.

Alarity Library offered by MDS

MDS offers the Alarity JPEG2000 encoder for the pnx1300. It is being updated to support use with the newer NDK

Other Libraries

You should discuss your plans with your Philips Nexperia 3rd party library vendors to ensure their library is usable in the development environment you plan to use.

TCP/IP Stacks

The NDK includes the old pSOS pNA component, but this is not a supported component any longer. Therefor MDS strongly suggests the FUSION stack for any project needing TCP/IP.

Unicoi FUSION TCP/IP stack

MDS offers the FUSION stack as an option for use with the DVE-2. An evaluation version of the FUSION code is included in NDK 2.2 SP2.1 CD. You may only use this for evaluation, a purchased license is required for use in your product.

Full out of the box support for FUSION with NDK 2.2 SP5 is in development.

Blunk Target TCP/IP

Starting with SP5 Philips switched to using the Blunk Target TCP/IP stack. This stack is purchased directly from Blunk. A supplemental CD needs to be ordered along with the NDK - it is provided at no charge if ordered with the NDK.

pSOS

There is no change in the pSOS components between the various versions. The system includes pSOS and pSOS+m, the port is derived from pSOS 2.5. As discussed earlier, the pPSOS pNA is still included, but not supported. In general, for future compatibility, Nexperia applications should use the wrappers for OS related tasks and not make direct OS calls.

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TriMedia/Nexperia software development tools

How does the old SDE 2.2 compare...

... to NDK 2.2 SP2.1?

For those of you that have used the SDE before, the NDK is roughly equivalent to the old SDE 2.2, but it adds the "SAS" (Stand Alone Systems) support. So, from the MDS point of view, the NDK adds SAS support for the DVE-2 in addition to all the software to support the TM1300 IREF board.

The NDK has a new directory structure for all the development files, and all new "build" files (makefiles and batch files). Also, it completely revises the documentation structure (it adds new documents, a new main menu, and embeds the old SDE docs, or at least most of them).

Basically, the NDK is a new environment that contains the old SDE 2.2 within it (in the TCS22DVP subdirectory).

The NDK still uses the TSSA (TriMedia Software Streaming Architecture) and the TSA (TriMedia Software Architecture), if you are familiar with those.

The NDK also merges some of the DVP (Digital Video Platform) stuff (utility programs, "standards" for makefiles and other build files, and even a "standard" way of naming directory trees) that various Philips groups built on top of the SDE when designing systems for Nexperia processor chips. Future versions of the NDK will add support for the new Nexperia chips that are coming out. The entire NDK currently supports only the PNX1300 based products (IREF and DVE-2, from the MDS point of view).

Also please see the IADK/NDK getting started guide on the MDS website.

...to the NDK 2.2 SP5?

This is perhaps a more radical departure, as the software now follows Philips SDE2 conventions. Rather than elaborate here, reading of the SDE2 and NDK 2.2 SP5 documentation is suggested.

Ordering information

The datasheets for the IREF, DVE-2, and JTAG board list the typical product combinations needed. Please contact your local distributor or the MDS sales department for ordering information for specific package components.

NDK Philips NDK 2.2 with SP2.1

- compiler, linker, assembler, utilities, core libraries, examples
- documentation on CDROM

NDK-U Philips SDE2.2 or NDK 2.2 SP1 to NDK 2.2 with SP2

- original SDE 2.2 CDROM must be returned to MDS for exchange
- please inform MDS if you are using it with the MDS IREF or DVE board so that we may include the updated CD for that

Please see the MDS website for IADK library information.

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FUSION is a trademark of Unicoi, Inc.

Target TCP is a trademark of Blunk Microsystems

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