

NDK for PlayStation®2

PlayStation 2 Network Development Kit

NDK for PlayStation 2 enables you to add networking capabilities to your PlayStation 2 application, at minimum cost and effort. Whether it's for online gaming, or any other internet application for the PlayStation 2, such as a web browser or an e-mail client, all of this can be achieved through an intuitive API.

Network Development Kit for PlayStation 2 consists of the NDK TCP/IP Stack, for building Internet connectivity into a PlayStation 2 game, plus the NDK Analyzer which allows PlayStation 2 Internet traffic to be examined on a development Windows PC across a LAN using the native DEC12 interface.

NDK TCP/IP Stack

NDK TCP/IP Stack for PlayStation 2 provides a socket API on the Emotion Engine® processor, that closely resembles the BSD socket API but with extensions so that multiple threads on the Emotion Engine can use the socket API. The TCP/IP stack and drivers run on the IOP processor so that it doesn't use up valuable Emotion Engine processing time. Sockets can be blocking or non-blocking, depending on how the application wants to use the multi-threaded support provided in the socket API. The basic API is best used where the socket access is done from one of more threads which are separate from the main game loop thread. However, due to SIFRPC blocking it is inefficient to use the basic API in a single-threaded Emotion Engine application. For this reason we also provide a fast socket API which uses a request-response queuing mechanism which avoids blocking in single-threaded EE applications. The TCP/IP Stack supports the following protocols:

- TCP/IP - Transport Control Protocol / Internet Protocol
- PAP - Password Authentication Protocol
- UDP - User Datagram Protocol
- ARP - Address Resolution Protocol
- ICMP - Internet Control Message Protocol
- CHAP - Challenge-Handshake Authentication Protocol
- PPP - Point-to-Point Protocol
- DHCP - Dynamic Host Configuration Protocol
- PPPoE - PPP over Ethernet

NDK Analyzer

NDK Analyzer allows you to intercept and analyze all Internet traffic to and from PlayStation 2s on your LAN. The NDK Analyzer has the following features:

- **Hardware independence** - The NDK Analyzer provides hardware independence as it enables you to use the NDK TCP/IP Stack without the need for a USB modem or a USB Ethernet adapter, since it uses the native DEC12 interface. It also enables you to view and capture the packets sent to and received from your TCP/IP application running on the Sony Computer Entertainment PlayStation 2 Development Tool DTL-10000 and save them to disk, as they are routed through ProDG Target Manager over the existing DEC12 protocol
- **Packet Routing** - The NDK Analyzer supports packet routing between the NDK TCP/IP Stack and any networked PC or Internet host (providing the LAN has an Internet connection) or between two Sony Computer Entertainment PlayStation 2 Development Tool DTL-10000s each running the NDK TCP/IP Stack.
- **Packet capture and analysis** - Using the NDK Analyzer you can stop and start the capture of packets and you can examine an individual packet at byte level or at the "data only" level.
- **Bandwidth Simulation** - Supports different data rates, for example, you can simulate different bandwidths in order to emulate the likely performance of an ethernet or modem connection. The NDK Analyzer produces statistics reporting the number of packets, number of Mbits per second and a graphical display of performance.
- **Error Simulation** - Error simulation is also provided to enable you to test the integrity of your networked application by dropping packets.

Supported Network Hardware

The following is a list of the ethernet and modem adapters that are supported by the NDK:

- Network Adaptor (Ethernet/Modem)(for PlayStation 2)
The NDK now supports the Network Adaptor (Ethernet/Modem)(for PlayStation 2). This contains a V.90 analog modem, a 10/100 Base-TX Ethernet connector, and connectors for an optional internal Hard Disk Drive.
- Supported USB modems
The following table lists all of the USB modems supported in the current release:
Lucent chip set:
 - Actiontec Call Waiting
 - Compaq 56K USB Fax Modem

- o Swann Smart USB 56K V.90 Modem / USB Pocket 56K NetSurfer
- o MultiTech MultiMobile USB MT5634MU
- o MultiTech MultiModem USB MT5634ZBA-USB
- o Zoom FaxModem 56K USB Model 2985L / 2987
- Conexant Smart SCM chip set:
 - o Aiwa PV-PS200 (Japan)
 - o Cadmus/Billionton PS2 Modem USB56R-PS2
 - o I-O Data P2Gate DFML-560/P2 (Japan)
- Via SN Systems wrapper for SCE modem driver:
 - o Omron Fax/Data Modem ME5614USB (Japan)
- Supported USB-Ethernet adapters

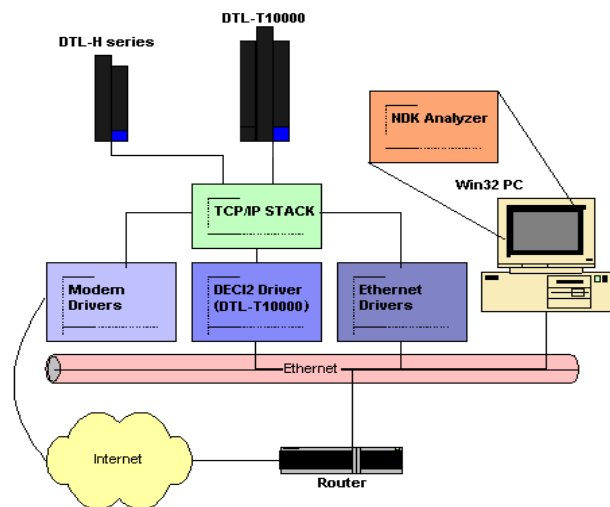
The following table lists all of the USB-Ethernet adapters supported in the current release. Our driver will support devices containing either the ADMTEk 8511 chip (Pegasus) or the ADMTEk 986 chip (Pegasus II).

 - o 3Com 3C460B
 - o BAFO BF-310 / NetLINE PN796 / SOHO-USBNET/100
 - o Belkin F5D5050
 - o Belkin F5U122-PC
 - o Billionton USBE-100B2
 - o Cadmus 10-100N2
 - o Buffalo LUA-TX / LUA2-TX
 - o Cadmus 10-100
 - o Cadmus USBEL-100N
 - o Corega FEther USB-TX
 - o Corega USB100
 - o D-Link DSB650 / DSB-650TX / DSB650TX-B
 - o D-Link DU-E100 / Hawking (UF100) USB 10/100M
 - o D-Link DU-E100 HW:B1
 - o EdiMax EU-4201 / Jinco UE-110 / Kouwell 588A / NetLINE PN796
 - o LinkSys USB100TX
 - o LinkSys USB100TX-B
 - o SMC EZNET-USB 2102 USB
 - o SOHOWare NUB100

How to build with the NDK

- Integrate with your application using SN Systems' or SCE's PlayStation 2 or third-party software development tools.
- Two variants of the TCP/IP Stack IRX file are provided: one with debug tracing/logging for use during game development, another for release in games. Note that only one variant (full) is provided for the drivers.
- Code written to use our socket / modem / Ethernet APIs is designed to be portable to other consoles.

The block diagram to the right shows the design of the TCP/IP Stack socket / modem APIs



System requirements

- Microsoft Windows 2000 or Windows XP Professional
- 16MB of RAM
- 300MB of hard disk space
- Network interface adapter (required for NDK analyzer)

For more information visit: <http://www.snsys.com/playstation2/ndk.asp>
 To request trial versions of software e-mail: contact@snsys.com

SN Systems

1st Floor Hartwell House – 55-61 Victoria Street – Bristol – United Kingdom – BS1 6AD

T: + 44(0)117 929 9733 F: + 44(0)117 929 9251

www.snsys.com

Copyright notice

Copyright © SN Systems Ltd, 2005 - 2008. All rights reserved. "ProDG" is a registered trademark and the SN logo is a trademark of SN Systems Ltd. "PlayStation" and "Emotion Engine" are registered trademarks of Sony Computer Entertainment Inc. "Microsoft" and "Windows XP" are registered trademarks of Microsoft Corporation. Other product and company names mentioned herein may be the trademarks of their respective owners.