

NAS7825 Highlights

- **NAS7825 Vitals**
 - Dual-Core ARM 11 MP
 - Each core running at 750MHz
 - 17 x 17 mm², 256-ball FBGA package
 - 1.0mm ball pitch
 - Typical Power: 1.1 Watts
- **NAS7825 Key Features**
 - **High Performance Architecture**
 - Dual-Core architecture advantageous to systems running multiple applications simultaneously, and at high performance
 - Application-specific hardware acceleration engines built-in for:
 - Networking
 - Storage
 - Security
 - Optimized firmware to yield highest performance at lowest system cost
 - **Highly Integrated**
 - SATA (3G): 2 ports
 - RGMII (GE): 2 ports
 - PCI Express (1.0): 2 x1 ports
 - USB (2.0): 2 ports
 - Others: I2C, SPI, UART, & JTAG
 - **Flexible Boot Options**
 - Boot from Flash memory
 - Boot from hard disk drive (HDD)
 - On-board Flash mem not required
 - Removing Flash lowers BOM cost
 - **RAID / JBOD Support**
 - RAID0 (Striping)
 - RAID1 (Mirroring)
 - JBOD
 - **Hardware Encryption**
 - Security engine for encryption with hashing functionality for enhanced security
 - AES-256
 - SHA-1/2
 - **Multiple File Systems Supported**
 - SMB, XFS
 - EXT3, EXT4
 - NTFS, HFS+

Application: *Home Media Gateway*

PLX Product: *NAS7825 – Dual-Core 750MHz NAS SoC*

Key Benefit: *High-Performance Storage Reads & Writes, Wireless Routing, and Video Transcoding*

The Evolution of Storage in the Home

The way the typical consumer stores and accesses his/her digital content has gone through a rapid evolution over the past decade. It was not long ago that everything fit on the hard drives of PCs and laptops. Then, as consumers started running out of space on PCs/laptops, they started buying large external hard disk drives (HDDs) to store their extra content. These external HDDs, or DAS (Direct Attached Storage) drives, connected directly to PCs/laptops via USB or Firewire. More recently, NAS (Network Attached Storage) drives have shown strong growth in the consumer storage market. Instead of connecting directly to a PC or laptop, NAS drives connect to a router (wired or wireless) and become a part of the home network. Consumers can then see the NAS drive as another drive on their home network. Anybody connected to the network can save files to, or access files from the NAS drive. Having one NAS drive that is always connected to the network and can be shared amongst many users via the home network can be much more convenient than having multiple DAS drives in the home. As such, mass adoption has started to take place and NAS drives are expected to surpass DAS drives in consumer storage market share over the next five years.

Initially, the NAS usage was similar to that of DAS. When consumers ran out of memory space on their laptop, camera, or mp3/media player, they stored their files on the NAS drive. Other consumers did not want to risk losing all their files by having them all in one place and so backed up all their files on a NAS drive to protect against hard drive crashes or loss/theft. Then, as the user interface improved and remote access services became available, consumers started using their NAS drive to share their digital content (photos, videos, music, documents. etc.) with others via the web. Folders within the NAS drive can be set up with different permissions settings, restricting access to a desired set of users. For example, co-workers can access documents for work but not family pictures. Conversely, Grandma can access family pictures but not your work documents. Since the NAS is connected to the router,



which is connected to the web, consumers can access their content from anywhere via the internet.

The latest trend in NAS usage centers on media streaming. With the advent of smartphones, Wi-Fi enabled mobile devices such as netbooks and tablets, and the increased number of media-streaming services such as Netflix, consumers want to be able to stream their video and music directly to their handheld mobile device.

To support the media streaming usage model, SoC's powering these NAS devices need to have the computing power to support multiple high-resolution video streams at high performance to ensure a clear, crisp, uninterrupted video stream. Furthermore, the NAS devices must also possess video transcoding capabilities in order to support various video formats and bit rates.

NAS7825 as a Media Gateway

The NAS7825 is a high-performance, dual-core SoC that can be used to transform a standard NAS device into an all-in-one media gateway. Along with being a high-performance NAS device, the NAS7825 also possesses the capabilities of a fully-functional, stand-alone wireless router.

With the NAS7825, consumers no longer need two separate boxes for routing and NAS functionalities. The NAS7825 allows for an all-in-one NAS Media Gateway which integrates the functions of a NAS device and a wireless router. Its two Gigabit Ethernet ports allow for both a WAN (out to the internet via service provider) and LAN (wired connection to PC/laptop) connections. Its two SATA ports allow for connections to up to two hard drives (RAID modes supported as well). And wireless functionality is provided by connecting a Wi-Fi card into one (or two) of the NAS7825's two PCI Express ports (see Figure 1 below). The NAS7825 supports both 5.0 GHz and 2.4 GHz Wi-Fi channels simultaneously.

The NAS7825 also supports its own firewall, so its content can be accessed from anywhere via its public IP address -- just like your router at home. Therefore,

when using a NAS7825-based media gateway system, the data on your NAS, be it documents, photos, music, or video, can be accessed directly via the internet. No special software or GUI required.

Moreover, using its built-in transcoding capabilities, the NAS7825 supports video files of varying formats. Hence, you can stream HD video from your NAS device sitting at home to your laptop, smartphone, or netbook while you are on the road for a business trip. With two processing cores running at 750MHz, it is powerful enough to stream multiple HD streams while simultaneously executing data transfers for other users.

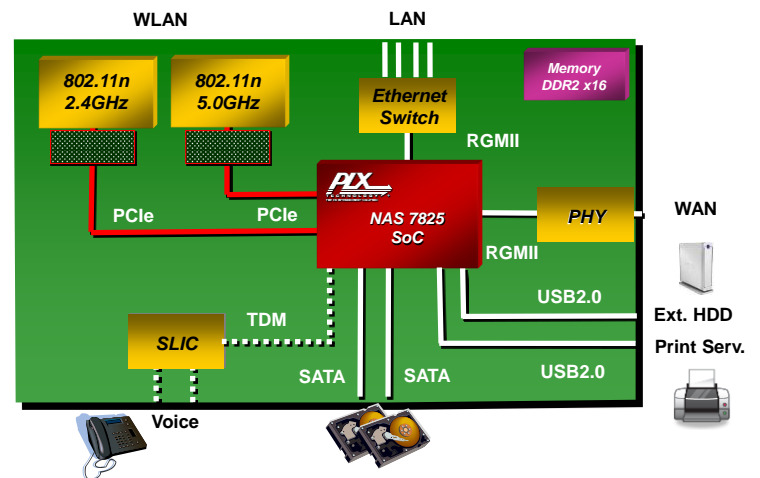


Figure 1

Available Today!

The NAS7825 is in full production and shipping today. Along with the NAS7825, PLX Technology also offers the below NAS devices:

Device	SATA Ports	RGMII Ports	PCIe Ports	RAID Modes	Wireless Routing	Availability
NAS	1	1	1	No	No	Full
NAS	2	1	1	0/1	No	Full
NAS	2	2	2	0/1	Yes	Full

To see a video demo of the NAS7825 wireless routing and transcoding functionality, or for more information on the NAS7825 device, please visit the PLX Website at www.plxtech.com/7825

- Other Collateral
 - Product Brief, Datasheet, Application Notes, Design Notes, etc.