

Intel® PRO/1000 Server Adapter iSCSI and iSCSI Remote Boot Frequently Asked Questions

Q1: Can I use standard Intel® PRO/1000 Server Adapters and Intel® LAN on motherboard (LOM) products to carry my iSCSI traffic?

A1: Yes. All major operating systems (OSs), such as Microsoft Windows® Server 2003, Red Hat Linux®, and Solaris® include iSCSI initiators. Any Intel PRO/1000 adapter or LOM will work with the native OS iSCSI initiators and carry iSCSI traffic. An expensive, dedicated iSCSI host bus adapter (HBA) is not required.

Q2: Will more expensive iSCSI HBAs provide better performance than native LAN adapters?

A2: No. iSCSI traffic is very similar to standard TCP/IP Gigabit Ethernet (GbE) LAN traffic, and the overwhelming majority of multi-port GbE server adapters run using the native networking stack running on top of the host CPUs with no performance issues. With the emergence of multi-core platforms, there is no reason to offload any portion of the network protocols or I/O processing. There is also no reason to break the model of using safe, compliant, consistent, and always up-to-date networking protocols from the OS vendors by introducing another set of networking protocols from an unproven hardware vendor.

In Intel testing, Intel PRO/1000 Server Adapters have demonstrated better performance than iSCSI HBAs and TCP/IP offload engine (TOE) adapters. They are also true plug-and-play devices, while HBAs and TOE adapters break the native OS model and require optimizations and overhead.

Q3: What is iSCSI remote or network boot?

A3: iSCSI remote or network boot allows you to boot a server from a remote OS image maintained on a storage area network (SAN). Remote boot uses an iSCSI firmware image that makes the remote disk drive resemble a local, bootable C: drive. The server client is configured to connect

to and boot from the iSCSI target disk on the network and download the OS image from the iSCSI target disk to boot the client server.

Q4: Where can I get iSCSI remote boot?

A4: Any Intel PRO/1000 Server Adapter for PCI Express® (PCIe®) can remote boot to a remote SAN.

Q5: Do I have to buy the code or an expensive HBA?

A5: No. Intel offers iSCSI remote boot ROM code without charge.

Q6: Does the remote boot code come with all Intel LAN products?

A6: Since there are many suppliers of Intel PRO/1000 Server Adapters, not all will offer the iSCSI boot ROM code with the adapters. You can download the Intel® iSCSI Boot FLASH ROM Utility from www.intel.com/support/network/adapter/pro100/sb/CS-023748.htm.

Only Intel PRO/1000 Server Adapters for PCIe support iSCSI remote boot.

Q7: Can I use my integrated LAN adapter (also called LAN on motherboard or LOM) for iSCSI remote boot?

A7: Most customers prefer to use the LOM for management and LAN traffic, and segment their iSCSI traffic by using an Intel PRO/1000 Server Adapter. If you want to use the LOM, check with your server vendor, as it is their responsibility to integrate the boot ROM code into the system BIOS. You always have the option of purchasing an Intel PRO/1000 Server Adapter for PCIe at a fraction of the cost of an iSCSI or Fibre Channel (FC) HBA.

You can also download the Intel iSCSI Boot FLASH ROM Utility from www.intel.com/support/network/adapter/pro100/sb/CS-023748.htm.

Q8: Does iSCSI remote boot require a dedicated, specialized server similar to that required in a preboot execution environment (PXE)?

A8: No. You do not need to dedicate a server for iSCSI remote boot. You can deploy and manage remote boot directly from the client server to the storage target; this is one of the benefits of iSCSI remote boot. There are various options for configuring a server for remote boot:

- Static configuration at system power-on
- DHCP, which provides dynamic IP address and iSCSI target assignment
- BIOS-integrated management tools using the management interface

Q9: What if I want to use PXE instead of iSCSI remote boot?

A9: Intel PRO/1000 Server Adapters for PCIe will continue to support PXE, and you have the option of choosing between PXE and iSCSI remote boot by programming the adapter with the appropriate boot image using the boot update utility provided by Intel.

Q10: What are the benefits of iSCSI remote boot?

A10: It is easier to deploy, manage, and update OS images to many servers across multiple sites if they are maintained on a SAN. iSCSI remote boot also allows you to deploy diskless servers and enhance the security of your data by centralizing it in one or more locations.

Q11: What server OSs do you support?

A11: Most major OSs support iSCSI remote boot:

- Microsoft Windows Server 2003 SP1 with iSCSI boot initiator v2.02
- Red Hat Enterprise Linux* 4.0 U3 with Linux iSCSI initiator
- SuSE* Linux Enterprise Server 9.0 SP3 with Linux iSCSI initiator
- Red Hat Enterprise Linux 5.0 with Open iSCSI initiator
- SuSE Linux Enterprise Server 10 SP1 with Open iSCSI initiator
- DOS

Q12: Have you tested with various iSCSI target arrays?

A12: Yes. Intel has tested with storage equipment from Network Appliance, EMC, Left Hand Networks, EqualLogic, and Intel.

Q13: What new features is Intel planning to release?

A13: In the future, Intel will release new features to support the latest Linux and Microsoft OS releases, boot for EFI/UEFI, and Intel® PRO/10GbE Server Adapters.

Q14: Is OS behavior different between boot from a local disk vs. iSCSI boot from a remote disk?

A14: No. You should not see any differences in OS or application behavior.

Q15: What authentication method does Intel iSCSI boot support?

A15: Intel iSCSI boot supports CHAP as an authentication method.

Q16: Is Multipath I/O (MPIO) supported by Intel iSCSI boot?

A16: Intel iSCSI boot solutions use the standard OS iSCSI boot initiators to provide remote boot support, so MPIO and other advanced features are supported for iSCSI boot via the OS initiator once the OS boots.

Q17: Does Intel® I/O Acceleration Technology (Intel® I/OAT) support Intel iSCSI boot solutions?

A17: Intel I/OAT supports Intel iSCSI boot and general network traffic once the OS networking stack is up and the OS initiator is running. Intel I/OAT reduces system overhead through interrupt moderation, memory access moderation, parallel compute and data movement operations, and reduced context switching.

For more information on Intel I/OAT, visit www.intel.com/go/ioat.

Q18: Does Intel iSCSI boot support adapter teaming?

A18: Adapter teaming is not supported on ports configured for iSCSI remote boot due to limitations in the OS stack, which does not support teaming for iSCSI traffic. Storage failover and load balancing support is provided by using MPIO.

