



Intel® Ethernet SR-IOV Toolkit

Single Root I/O Virtualization and Sharing Toolkit for Intel Ethernet

LAN Access Division

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Revisions

Date	Revision	Description
June 2, 2009	0.75	Initial Draft
June 10, 2009	1.00	Initial public release.
May 24, 2010	1.10	Updated with Intel 82599 information.

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1 SR-IOV General References

This document acts as a portal for SR-IOV resources available for Intel® Ethernet Controllers. It provides links to a collection of documents which contain overviews and technical information.

The following are general references.

- *PCI-SIG SR-IOV Primer, An Introduction to SR-IOV Technology.*
 - A high-level overview of SR-IOV and the system requirements. Access through the listing at <http://developer.intel.com/products/ethernet/index.htm?iid=nc+ethernet>.¹
- *PCI SIG SR-IOV Specification*
 - The SR-IOV specification, available from the PCI Sig. See: <http://www.pcisig.com/specifications/iov/>
- *SR-IOV Networking in Xen: Architecture, Design and Implementation*
 - A 2008 paper Intel co-presented at the Xen Summit. See: http://www.sagecertification.org/events/wiov08/tech/full_papers/dong/dong.pdf.
- *Intel® Virtualization Technology for Directed I/O (VT-d)*
 - An overview of Intel® Virtualization Technology for Directed I/O (VT-d). See: <http://software.intel.com/en-us/articles/intel-virtualization-technology-for-directed-io-vt-d-enhancing-intel-platforms-for-efficient-virtualization-of-io-devices/>.
- *Intel SR-IOV Explanation*
 - A short 10 minute video explaining at a high-level how SR-IOV works <http://www.youtube.com/watch?v=hRHsk8Nycdg>

¹ For the Intel Developer links: select 82576EB or 82599ES from the Pick List. Then move to the SR-IOV entries.

2 SR-IOV Resources for Intel® 82576 1GbE

The Intel® 82576 GbE Controller is the first Intel Ethernet controller to support PCI SIG SR-IOV. It has sufficient resources for eight virtual functions for each port. The following resources are available for 82576 support.

- *Intel® 82576 Gigabit Ethernet Controller Datasheet*
 - The datasheet documents the controller. It includes descriptions of the virtualization features and registers for the control of those features. See the listing at <http://developer.intel.com/products/ethernet/index.htm?iid=nc+ethernet#s1=Gigabit%20Ethernet&s2=82576EB&s3=all>.²
- *Intel® 82576 SR-IOV Driver Companion Guide*
 - The guide bridges the gap between the reference drivers and the datasheet. It provides an overview of the Linux SR-IOV drivers (PF and VF) for the 82576. See the listing at <http://developer.intel.com/products/ethernet/index.htm?iid=nc+ethernet>.
- Notes on Sample Drivers
 - The SR-IOV drivers for the Intel® 82576 Gigabit Ethernet Controller are available as part of the Linux* Kernel 2.6.30 and later. See: www.kernel.org. In addition, the drivers are available on SourceForge at: <http://sourceforge.net/projects/e1000/files/>
 - Select the igb driver for the PF driver source.
 - Select the igbvf driver for the VF driver source

² For the Intel Developer links: select the SR-IOV entries.

3 SR-IOV Resources for Intel® 82599 10GbE

The Intel® 82599 10GbE Controller is the second Intel Ethernet controller to support PCI SIG SR-IOV. It has sufficient resources for sixty-four virtual functions for each port. The following resources are available for the Intel 82599 10GbE controller.

- *Intel® 82599 10 Gigabit Ethernet Controller Datasheet*
 - The datasheet documents the controller. It includes descriptions of the virtualization features and registers for the control of those features. See the listing at <http://developer.intel.com/products/ethernet/index.htm?iid=nc+ethernet#s1=10%20Gigabit%20Ethernet&s2=82599ES&s3=all>³
- *Intel® 82599 SR-IOV Driver Companion Guide*
 - The guide bridges the gap between the reference drivers and the datasheet. It provides an overview of the Linux SR-IOV drivers (PF and VF) for the 82599. See the listing at <http://developer.intel.com/products/ethernet/index.htm?iid=nc+ethernet#s1=10%20Gigabit%20Ethernet&s2=82599ES&s3=all>
- Notes on Sample Drivers
- The SR-IOV drivers for the Intel® 82599 Gigabit Ethernet Controller are available as part of the Linux* Kernel 2.6.32 and later. See: www.kernel.org. In addition, the drivers are available on SourceForge at: <http://sourceforge.net/projects/e1000/files/>
 - Select the ixgbe driver for the PF driver source.
 - Select the ixgbevf driver for the VF driver source

³ For the Intel Developer links: select the SR-IOV entries.