Kontron Carrier Grade Server TIGW1U & IP Network Server NSW1U

Tested Hardware and Operating System List

Revision 3.4

April 2012

Revision History

Date	Revision Number	Modifications
December 2006	1.1	Separate THOL for NSW1U, removed TIGW1U from this revision Updated all OS versions to correct revisions in all tables. Updated all Hardware Lists Updated HDD section notes and warnings and tested drives
February 2007	1.2	Added TIGW1U back to THOL
February 2007	1.3	Added additional NICs
May 2007	1.4	Change to: Section 5 - TIGW1U HDD Section 1 - Add NSWA0401 to Product Table Section 1 - Fixed NSWA0301 description, Section 4 - Updated section 4.2 to reference NSW1U only
July 2007	1.5	Section 5 – Add additional SAS HDD
October 2007	1.6	Section 2 – Update Table BIOS, FW info Section 5 – Add additional SATA HDD for NSW1U Section 5 – Add additional SAS HDD for TIGW1U
October 2007	1.7	Section 5 – Add additional SAS HDD for TIGW1U Changed “warnings” to “cautions”
December 2007	1.8	Section 5 – Add additional SAS HDD for TIGW1U
January 2008	1.9	Section 5 – Add additional SAS HDD for TIGW1U
April 2008	2.0	Section 2 - Update Table BIOS, FW info Section 3 – Update OS Certification Section 4 – Add additional CD/DVD ROM on Section 4.7 Section 5 – Add additional SAS HDD for TIGW1U
	2.1	Not released
January 2009	2.2	Section 4.8 – Added two Smart Modular Embedded Flash Drives Section 5 – Added 2.5” SATA HDDs for TIGW1U Added 2.5” Intel X25-E 32GB SATA SSD for TIGW1U
May 2009	2.3	Global edits to replace Intel with Kontron where appropriate
August 2009	2.4	Section 5 – Added 2.5” SAS HDDs for TIGW1U
February 2010	2.5	Section 5, Page 18 - Added Seagate Constellation 500GB 2.5” SAS drive for TIGW1U
February 2010	2.6	Section 4.4 – Fixed description for Intel Quad Port Bypass NICs
May 2010	2.7	Section 4.8 – Updated with additional SMART eUSB flash drives
July 2010	2.8	Section 5 – Added Seagate ST9320423AS
October 2010	2.9	Section 5 – Added Toshiba MBF Series SAS drives
December 2010	3.0	Section 5 – Added Seagate ST3500514NS
January 2011	3.1	Section 4.4 – Added Intel E1G44ET2 and E10G42BT, Section 4.7 – Added two SATA optical drives
February 2011	3.2	Update notes for ST9500430SS hard drive – **0005 fw required**
July 2011	3.3	Section 5 – Added Seagate Constellation.2 and Savvio 10K.5 SAS drive families
April 2012	3.4	Section 5 – Add Seagate Constellation ES ST500NM0011 to the NSW1U HDD list

Disclaimers

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1. Introduction

This document is intended to provide users of the Kontron Carrier Grade Server TIGW1U and the Kontron IP Network Server NSW1U with a list of the operating systems, adapter cards, and peripherals tested by Kontron on this server platform. The Kontron Carrier Grade Server TIGW1U and the Kontron IP Network Server NSW1U is integrated using the Kontron Server Board **S5000PHB**.

This document will continue to be updated as new adapters, peripherals, and operating systems are tested or until and they are no longer in production. Each new release of the document will present updated information as well as continue to provide the information from previous releases.

The adapters and peripherals specified in this document may or may not have been tested on all available board/riser combinations that make up the NSW1U product family. Kontron will provide support for the adapters and peripherals listed when used within this family of products.

The Kontron Carrier Grade Server TIGW1U and the Kontron IP Network Server NSW1U product families consist of the following server building blocks and integrated systems:

Product Code	Product Description
TMRA0201W	**Kontron Carrier Grade Server TIGW1U, Server Board S5000PHB - Onboard SAS + DDR2-533 or DDR2-667 FBD Memory + One PCI Riser + 20 inch Chassis Depth + DVD/CDRW Combo Drive + Three Hot-Swap SAS HDD Support + AC Power**
TMRD0201W	**Kontron Carrier Grade Server TIGW1U, Server Board S5000PHB - Onboard SAS + DDR2-533 or DDR2-667 FBD Memory + One PCI Riser + 20 inch Chassis Depth + DVD/CDRW Combo Drive + Three Hot-swap SAS HDD Support + DC Power + NEBS + ETSI**
NSRA0201W	**Kontron IP Network Server NSW1U, Server Board S5000PHB - Onboard SATA + DDR2-533 or DDR2-667 FBD Memory + One PCI Riser + 20 inch Chassis Depth + Two SATA HDD Support + AC Power + Four Ports Rear NIC [Four + Four Optional] + CDR-RW/DVD-ROM (optional)**
NSRD0201W	**Kontron IP Network Server NSW1U, Server Board S5000PHB - Onboard SATA + DDR2-533 or DDR2-667 FBD Memory + One PCI Riser + 20 inch Chassis Depth + Two SATA HDD Support + DC Power + Four Ports Rear NIC [Four + Four Optional] + CDR-RW/DVD-ROM (optional)**
NSRA0401W	**Kontron IP Network Server NSW1U, Server Board S5000PHB - Onboard SATA + DDR2-533 or DDR2-667 FBD Memory + One PCI Riser + 20 inch Chassis Depth + Two SATA HDD Support + AC Power + Four Ports Rear NIC [Four (rear) + Four Optional (front or rear)] + CDR-RW/DVD-ROM (optional)**

1.1 Test Overview

Testing performed on the Kontron Carrier Grade Server TIGW1U and the Kontron IP Network Server NSW1U is divided under two separate categories:

- Basic Operating System Installation Testing
- Adapter / Peripheral Compatibility testing, and System Stress Testing.

1.1.1 Basic Installation Testing

Basic installation testing is performed with each supported operating system. Basic installation testing validates that the server board can install the operating system and that the base hardware feature set is functional. A small set of peripherals is used for installation purposes only. No add-in adapter cards are tested. Testing includes network connectivity and running of proprietary and industry standard test suites.

/ The latest version of an operating system signifies the latest supported version at the time of the actual test run. Each new release of this document may have a newly supported release of a given operating system. Previous releases of a supported operating system may not be tested beyond the basic installation test process.

1.1.1.1 Support Commitment for Basic Installation Testing

Kontron commits to provide the following level of customer support for operating systems that receive only basic installation testing:

- Kontron will provide and test operating system drivers for each of the server board's integrated controllers, provided that the controller vendor has a driver available upon request. Vendors will not be required by Kontron to develop drivers for operating systems that they do not already support. This may limit the functionality of certain server board integrated controllers.
- Kontron will support customer issues that involve installation and/or functionality of operating system with the server board's integrated controllers only if a driver has been made available.
- Kontron will NOT provide support for issues related to use of any add-in adapters or peripherals installed in the server system when an operating system that received basic installation testing only is in use.
- Support is defined as assistance in root causing issues, and determining a customer acceptable resolution to the issue associated with the operating system. The resolution may include, but is not limited to, on-board controller driver changes, engaging the vendor for resolution, BIOS changes, firmware changes, or determining a customer acceptable workaround for the issue.

1.1.2 Adapter / Peripheral Compatibility and Stress Testing

Adapter / Peripheral Compatibility and Stress testing is performed only on the most current release of a supported operating system at the time of a given validation run. The Adapter / Peripheral Compatibility and Stress testing process consists of three areas: Base Platform, Adapter Compatibility, and Stress.

Base Platform: Each base platform will successfully install a given operating system, successfully run a disk stress test, and successfully run a network stress test.

Adapter Compatibility: Adapter compatibility validation (CV) testing uses test suites to gain an accurate view of how the server performs with a wide variety of adapters under the primary

supported operating systems. These tests are designed to show hardware compatibility between the add-in cards and the server platform and include functional testing only. No heavy stressing of the systems or the cards is performed for CV testing.

Stress Testing: This test sequence uses configurations that include add-in adapters in all available PCI slots for a minimum 72-hour test run without injecting errors. Each configuration passes an installation test, a Network/Disk Stress test, and tape backup test. Any fatal errors that occur will require a complete test restart.

1.1.2.1 Support Commitment for Adapter / Peripheral Compatibility and Stress Testing

Kontron commits to provide the following level of customer support for operating systems that receive Adapter / Peripheral Compatibility and Stress testing:

- Kontron will provide support for customer issues with these operating systems involving installation and/or functionality of the server board with or without the adapters and peripherals listed in this document as having been tested under the particular operating system.
- Support is defined as assistance in root causing issues, and determining a customer acceptable resolution to the issue associated with the operating system. The resolution may include, but is not limited to, on-board controller driver changes, engaging the vendor for resolution, BIOS changes, firmware changes, or determining a customer acceptable workaround for the issue.
- Kontron will provide and test operating system drivers for each onboard video, network, and storage controller.
- Kontron will enable vendors to provide driver support for add-in adapters using these operating systems.
- Kontron will go through some of the steps to achieve certification to ensure its customers do not run across any problems, but the actual certification is the responsibility of the individual customer.

/ For operating systems, adapter cards, and peripherals not listed in this document, there is no support commitment. Kontron will consider support requests on a case-by-case basis.

1.2 Pass/Fail Test Criteria

For each operating system, adapter, and peripheral configuration, a test passes if specific criteria are met. Specific configurations may have had particular characteristics that were addressed on a case-by-case basis. In general, a configuration passes testing if the following conditions are met:

- The operating system installed without error.
- Manufacturer's installation instructions or Kontron's best-known methods were used for the operating system installation.
- No extraordinary workarounds were required during the operating system installation.
- The server system behaved as expected during and after the operating system installation.
- Application software installed and executed normally.
- Hardware compatibility tests ran to completion without error.
- Test software suites executed successfully

- Test and data files were created in the correct directories without error.
- Files copied from client to server and back compare to the original with zero errors reported.
- Clients remain connected to the server system.
- Industry standard test suites run to completion with zero errors reported.

2. Base System Definitions

The following table lists the base system configurations tested for a given validation test run. Each specific product/system software combination tested is assigned a Base System Identifier Number. These numbers are used in the lists of supported adapters and peripherals referenced in the following sections.

The adapters and peripherals specified in this document may or may not have been tested on all available board/riser combinations that make up the TIGW1U and NSW1U product families. However, Kontron will provide support for the adapters and peripherals listed when used within this family of products

This table is updated when a new test run is performed and a new product/system software combination was used.

/ Kontron will only provide support for adapters and peripherals under the specified operating systems versions with which they were tested.

Base System Configuration Identifier #	Product Family	BIOS Revision	mBMC/BMC Firmware Revision	FRU/SDR Version	HSC Firmware Revision
1	NSW1U	R0071	BMC12	FHB_08	NA
2	TIGW1U	R0079	BMC15	FHB_12	HSC204
3	NSW1U-R	R0088	BMC19	FHB_17	NA
4	TIGW1U-R	R0088	BMC19	FHB_17	HSC207
5	TIGW1U-R	R96.10	BMC23	FHB_18	HSC207
6	TIGW1U-R	R96.11	BMC 26	FHB_18	HSC207
7	NSW1U-R TIGW1U-R	R0099	BMC 27a	FHB_19	HSC211
8	NSW1U-R TIGW1U-R	R0101	BMC 28	FHB_19	HSC211

3. Supported Operating Systems

The following table provides a list of supported operating systems for the Kontron IP Network Server ***NSW1U***. Each of the listed operating systems was tested for compatibility with the Kontron Server Board S5000PHB in the base system configurations listed in section 2 of this document. Operating systems are supported only with the specified base system configuration(s) with which they were tested.

The following table also indicates whether each operating system received Basic Installation testing, or Adapter / Peripheral Compatibility and Stress testing. For information on the support commitments for Basic Installation Testing vs. Adapter / Peripheral Compatibility and Stress Testing, please reference Section 1 of this document.

Any variations to the standard operating system installation process are documented in the Installation Guidelines section of this document. If there are no installation guidelines noted in the following table, then the operating system installed as expected using manufacturer's installation instructions or Kontron's best-known methods.

Operating System	Base System Configuration Tested & Type of Testing	Notes
Microsoft Windows Server 2003, Enterprise Edition, Release 2	Base Config # - 1 Compatibility & Stress	
Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Base Config # - 1 Compatibility & Stress	
Red Hat* Enterprise Linux 4.0, Update 4	Base Config # - 1 Compatibility & Stress	
Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Base Config # - 1 Compatibility & Stress	
SUSE Linux Enterprise Server 9, x86, Service Pack 3	Base Config # - 1 Compatibility	
SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3	Base Config # - 1 Compatibility & Stress	
Red Hat* Enterprise Linux 5.0	Base Config # - 3, 4 Compatibility	
Red Hat Enterprise Linux 5.0 (Intel® EM64T Edition)	Base Config # - 3, 4 Compatibility	
SUSE Linux Enterprise Server 10, x86	Base Config # - 3, 4 Compatibility	
SUSE Linux Enterprise Server 10, Intel® EM64T®	Base Config # - 3,4 Compatibility	

3.1 Operating System Certifications

Listed below are the operating systems that Intel has certified with the Intel® Carrier Grade Server ***TIGW1U*** (now Kontron Carrier Grade Server TIGW1U) and the Intel® IP Network Server ***NSW1U*** (now Kontron IP Network Server ***NSW1U***). However, the customer is responsible for their own certification from the individual operating system vendors. In many cases, the customer may leverage their operating system certifications from Intel's testing. See the "Comments" section next to each operating system in the table below for additional information. Intel's certifications, pre-certification, and operating system testing may help reduce some of the risk in achieving customer certifications with the operating system vendors.

Operating System	Certification List Name	Comments
Microsoft Windows Server 2003* R2 (32 bits and 64 bits)	Intel® IP Network Server NSW1U-R Intel® IP Network Server NSW1U-F	OEM must request certification by Microsoft* for their specific product. http://www.microsoft.com/whdc/hcl/default.mspx http://developer.intel.com/design/servers/whql.htm http://www.windowsservercatalog.com/item.aspx?idItem=84a67134-7a46-437f-f8d6-aba778eb2e89 http://www.windowsservercatalog.com/item.aspx?idItem=efcc78e3-b3b6-dd3a-ef28-ee5be1912ae7
	Intel® Carrier Grade Server TIGW1U	http://www.windowsservercatalog.com/item.aspx?idItem=fcf28c27-f7e6-2b07-347f-f5ac8092acb5
Red Hat* Enterprise Linux 4.0 AS U4 (32 bits and 64 bits)	Intel® IP Network Server NSW1U-R Intel® IP Network Server NSW1U-F	Red Hat* checks Intel's test results, certifies (if appropriate), and posts the certificate on their web site. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. https://hardware.redhat.com/show.cgi?id=230494 https://hardware.redhat.com/show.cgi?id=230490
	Intel® Carrier Grade Server TIGW1U	https://hardware.redhat.com/show.cgi?id=248236
SUSE* Linux Enterprise Server 9 SP3 (32 bits and 64 bits)	Intel® IP Network Server NSW1U-R Intel® IP Network Server NSW1U-F	Novell* checks Intel's test results, certifies (if appropriate), and posts the certificate on their web site. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. http://www.novell.com/partnerguide/product/205393.html
	Intel® Carrier Grade Server TIGW1U	http://www.novell.com/partnerguide/product/206044.html
Red Hat* Enterprise Linux 5.0 (32 bits and 64 bits)	Intel® IP Network Server NSW1U	Red Hat* checks Intel's test results, certifies (if appropriate), and posts the certificate on their web site. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. https://hardware.redhat.com/show.cgi?id=444932
	Intel® Carrier Grade Server TIGW1U	https://hardware.redhat.com/show.cgi?id=443539

Supported Operating Systems

Operating System	Certification List Name	Comments
SUSE* Linux Enterprise Server 10 (32 bits and 64 bits)	Intel® IP Network Server NSW1U	Novell* checks Intel's test results, certifies (if appropriate), and posts the certificate on their web site. Customer can leverage the Intel certification, if customer product meets the operating system vendor standard. http://developer.novell.com/yes/101202.htm http://developer.novell.com/yes/101201.htm
	Intel® Carrier Grade Server TIGW1U-R	http://developer.novell.com/yes/101165.htm http://developer.novell.com/yes/101166.htm

4. Adapters and Peripherals

Add-in adapter card and peripheral compatibility and stress testing will only be performed with the latest version of an operating system at the time the validation testing occurred. The following table shows the operating system and base system configurations used to validate each device. The adapters are divided into categories based on their functionality. All integrated on-board devices are tested by default and are therefore not included in the following tables.

Note that not all adapter cards were tested under all operating systems. The following notations are used in the tested adapters and peripherals table below to indicate the support level that Kontron provides for a particular adapter under a particular operating system:

ü	This adapter or peripheral has been tested and is supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
Number in brackets (i.e. [1])	This adapter or peripheral has been tested, but is NOT supported under the specific configuration identified in the Base System Configurations Table in Section 2 of this document.
NT	This adapter or peripheral has not been tested under this operating system and is not supported under this operating system.
ND	This adapter or peripheral has not been tested under this operating system due to limitations in IHV driver availability, and is not suported under this operating system.
SA (Similar Adapter) Referenced in the "Comments" column for each adapter that is supported but not tested.	This adapter is supported, but not tested. This adapter model has not been tested with this server board, but Kontron will support it based on successful testing of a similar adapter from the same adapter family. Kontron has high confidence that this adapter will function correctly with the server board. This adapter uses the same firmware and drivers, and has a nearly identical system interface to another adapter of the same family that has been successfully tested with this server board. In addition, Kontron has secured IHV commitment to support the similar adapters equally. Customers should always test adapters as part of the final system configuration prior to deployment. All installation guidelines for the tested adapter also apply to the similar adapter.
IHVT (IHV Tested)	This adapter or peripheral was tested according to Kontron-approved guidelines and test procedures by the Independent Hardware Vendor (IHV) that manufactured this adapter or peripheral. Kontron provides the same level of support for all the adapters or peripherals listed in this document, regardless of whether this adapter or peripheral was tested in an Kontron lab or not. IHV test reports remain the property of the IHV (Kontron cannot provide copies of these reports).

Any variations to the standard adapter installation process or to expected adapter functionality are documented in the Installation Guidelines section of this document. If there are installation guidelines affecting a particular adapter and operating system combination, these are referenced in the following table. If there are no installation guidelines noted in the following table, then the adapter installed and functioned as expected using manufacturer's installation instructions or Kontron's best-known methods.

/ Testing of adapters cards normally is performed with unused add-in adapters and onboard controller expansion ROMs disabled in BIOS Setup. Kontron recommends that customers disable the option ROM for add-in controllers and/or the on-board controllers when not booting from the controller or needing to use its built in utilities.

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
4.1 PCI SAS SW-RAID										
Adaptec	ASC-48300	ASC-48300 (HostRAID)	PCI-X133 Universal	Linux: HostRAID Ver. 1.1.5472; Windows: HostRAID Ver. 1.1.5472	√	√	√	√	ND	ND
Adaptec	ASC-48300	ASC-48300 (non-RAID)	PCI-X133 Universal	Similar Adapter ASC-48300	SA	SA	SA	SA	ND	ND
LSI Logic	3442x	3442x (IT)	PCI-X133 Universal	Linux: 3.02.57; Windows: 1.21.05 (32 bit); 1.21.05.00 (64 bit)	√	√	√	√	√	√
LSI Logic	3442x	3442x (IR)	PCI-X133 Universal	Similar Adapter 3442x (IT)	SA	SA	SA	SA	SA	SA
LSI Logic	LSISAS3041x	LSISAS3041x (IT & IR)	PCI-X133 Universal	Similar Adapter 3442x (IT)	SA	SA	SA	SA	SA	SA
LSI Logic	LSISAS3080x	LSISAS3080x (IT & IR)	PCI-X133 Universal	Similar Adapter 3442x (IT)	SA	SA	SA	SA	SA	SA
LSI Logic	LSISAS3800x	LSISAS3800x (IT & IR)	PCI-X133 Universal	Similar Adapter 3442x (IT)	SA	SA	SA	SA	SA	SA
4.2 PCI SATA HW-RAID (NSW1U only)										
Adaptec	AAR-21610SA	AAR-21610SA	PCI-64/66 Universal	16 port (2 x 8 port Marvell), IOP 303	√	√	√	√	√	√
AMCC/3ware	9500S-8	9500S-8	PCI-64/66 Universal	8 channel SATA 1.0, RAID 0, 1, 10, 5. PCI 64/66	√	√	√	√	√	√
AMCC/3ware	9500S-8MI	9500S-8ML	PCI-64/66 Universal	Similar Adapter 9500S-8; 8 channel SATA 1.0, RAID 0, 1, 10, 5. PCI 64/66	SA	SA	SA	SA	SA	SA
AMCC/3ware	9500S-12	9500S-12	PCI-64/66 Universal	Similar Adapter 9500S-8; 12 channel SATA 1.0, RAID 0, 1, 10, 5. PCI 64/66	SA	SA	SA	SA	SA	SA
AMCC/3ware	9500S-12MI	9500S-12ML	PCI-64/66 Universal	Similar Adapter 9500S-8; 12 channel SATA 1.0, RAID 0, 1, 10, 5. PCI 64/66	SA	SA	SA	SA	SA	SA

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
AMCC/3ware	9500S-4LP	9500S-4LP	PCI-64/66 Universal	Similar Adapter 9500S-8; 4 channel SATA 1.0, RAID 0, 1, 10, 5. PCI 64/66	SA	SA	SA	SA	SA	SA
Intel	SRCS16	SRCS16	PCI-64/66 Universal	6 port, SATA 1.5G, RAID 0, 1, 10, 5, 50	√	√	√	√	√	√
Intel	SRCS28X	SRCS28X	PCI-X133 Universal	8 port SATA 3.0G, RAID 0, 1, 10, 5, 50	√	√	√	√	√	√
LSI Logic	MegaRAID SATA 300-8x	MegaRAID SATA 300-8x	PCI-X133 Universal	8 channel, SATA 3G, RAID 0, 1, 10, 5, 50	√	√	√	√	√	√
4.3 PCI Fibre Channel										
Emulex	LP10000ExDC	LP10000ExDC-M2	PCI Express X4	Dual channel, 2Gb FC, PCI Express	√	√	√	√	√	√
Emulex	LP1050Ex	LP1050Ex-F2	PCI Express X4	Similar Adapter LP10000ExDC; Single channel, 2Gb FC, PCI Express	SA	SA	SA	SA	SA	SA
Qlogic	QLA2342	QLA2342	PCI-X133 Universal	Dual channel 2Gb FC Optical, 2312 chip	√	√	√	√	√	√
Qlogic	QLA2340	QLA2340	PCI-X133 Universal	Similar Adapter QLA2342; Single channel 2Gb FC Optical, 2312 chip	SA	SA	SA	SA	SA	SA
Qlogic	QLE2362	QLE2362	PCI Express X4	Dual channel, 2Gb PCI Express HBA - LC Multi-mode Optic	SA	SA	SA	SA	SA	SA
Qlogic	QLE2360	QLE2360	PCI Express X4	Similar Adapter QLE2362; Single channel, 2Gb PCI Express HBA - LC Multi-mode Optic	√	√	√	√	√	√
4.4 PCI NIC										
Intel	E1G44ET2	Intel® Gigabit ET2 Quad Port Server Adapter	PCI Express x4	Quad Port, Intel® 82576 chipset, RJ-45 Copper	√	√	√	√	√	√
Intel	E10G42BT	Intel® Ethernet Server Adapter X520-T2	PCI Express x8	Dual Port, Intel® 82599ES chipset, RJ-45 Copper	√	√	√	√	√	√

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
Intel	PILA8470D3	PRO/100+ S Server	PCI-32/33 Universal	Southbend II, 10/100baseT + Security	√	√	√	√	√	√
Intel	PILA8472C3	PRO/100+ Dual Port	PCI-64/66 Universal	Gainesville, 10/100baseT, Dual port	√	√	√	√	√	√
Intel	PWLA8490MT	PRO/1000MT Gigabit Server Adapter	PCI-X133 Universal	10/100/1000baseT, Copper, No bridge	√	√	√	√	√	√
Intel	PWLA8490MF	PRO/1000MF Gigabit Server Adapter	PCI-X133 Universal	Similar Adapter PWLA8490MT; 1000baseLC, Fibre, No bridge	SA	SA	SA	SA	SA	SA
Intel	PWLA8492MT	PRO/1000MT Dual Port Gigabit Server Adapter	PCI-X133 Universal	10/100/1000baseT, Dual Port, Copper, No bridge	√	√	√	√	√	√
Intel	PWLA8492MF	PRO/1000MT Dual Port Gigabit Server Adapter	PCI-X133 Universal	Similar Adapter PWLA8492MT; 1000baseLC, Dual Port, Fiber, No bridge	SA	SA	SA	SA	SA	SA
Intel	PWLA8494MT	PRO/1000 MT Quad Port Server Adapter	PCI-X133 Universal		√	√	√	√	√	√
Intel	Intel® PRO/1000 AF Quad Port Bypass Adapter Fiber - RNIC	EXPI9014PFBLK	PCI Express X8		ND	ND	√	√	√	√
Intel	Intel® PRO/1000 AF Quad Port Bypass Adapter Fiber - NICIF	EXPI9024PFBLK	PCI Express X8		ND	ND	√	√	√	√
Intel	Intel® PRO/1000 AT Quad Port Bypass Adapter Copper - RNIC	EXPI9014PTBLK	PCI Express X8		ND	ND	√	√	√	√
Intel	Intel® PRO/1000 AT Quad Port Bypass Adapter Copper - NICIF	EXPI9024PTBLK	PCI Express X8		ND	ND	√	√	√	√
Intel	PCI Express Intel PRO/1000 PF Dual Port Server Adapter, Fiber	EXPI9402PFBLK	PCI Express X8		√	√	√	√	√	√

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
Intel	PCI Express Intel PRO/1000 PF Server Adapter, Fiber	EXPI9400PFBLK	PCI Express X8		√	√	√	√	√	√
Intel	PCI Express Intel PRO/1000 PT Dual Port Server Adapter, Copper	EXPI9402PTBLK	PCI Express X8		√	√	√	√	√	√
Intel	PCI Express Intel PRO/1000 PT Server Adapter, Copper	EXPI9400PTBLK	PCI Express X8		√	√	√	√	√	√
4.5 Telephony										
Intel (Dialogic)	DM/V600BTEP	Intel® Dialogic® Dual Span Voice Series	PCI-32/33 Universal	Dual E1/T1 ISDN Network Interface with 60 Ports of Voice Processing and 120 Ports of Telephony Signaling	√	√	√	√	√	√
4.6 Keyboard/Mouse										
Dell	RT7D20		PS/2	Keyboard	√	√	√	√	√	√
Microsoft	RT2300		PS/2	Keyboard	√	√	√	√	√	√
IBM	KB8923		PS/2	Keyboard	√	√	√	√	√	√
Acer	KU-0355		PS/2	Keyboard	√	√	√	√	√	√
NEC	KB9863		PS/2	Keyboard	√	√	√	√	√	√
IBM	M-SAM-IBM5		PS/2	Mouse	√	√	√	√	√	√
IBM	MU29J		PS/2	Mouse	√	√	√	√	√	√
Microsoft	Optical Mouse		USB	Mouse	√	√	√	√	√	√
Microsoft	M 2.1A		PS/2	Mouse	√	√	√	√	√	√
Ativa	GS600		USB	Optical Mouse	√	√	√	√	√	√

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
4.7 CDROM Drives										
TEAC	DW-224E-N83	DW-224E-N83	IDE/Slimline	Slimline CD-ROM Drive	√	√	√	√	√	√
TEAC	DW-224E-C93	DW-224E-C93	IDE/Slimline	Slimline CD-RW/DVD-ROM Combo Drive	√	√	√	√	√	√
Lite-On	SOSC-2483K	SOSC-2483K	IDE/Slimline	Slimline CD-R/RW/DVD-ROM Drive	√	√	√	√	√	√
Sony	CRX890A-01	CRX890A	IDE/Slimline	Slimline CD-RW/DVD-ROM Combo Drive	√	√	√	√	√	√
Sony-NEC Optiarc	AD7590A-01	AD7590	IDE/Slimline	Slimline DVD-RW Combo Drive	√	√	√	√	√	√
Sony Optiarc	AD7700S-01	AD-7700S	SATA/Slimline	Dual-Layer DVD-RW Multi Recorder	√	√	√	√	√	√
Lite-On	DS-8A5S	DS-8A5S	SATA/Slimline	Dual-Layer DVD-RW Multi Recorder	√	√	√	√	√	√
4.8 USB Drives / Embedded Flash Drives										
San Disk	SDCZ2-4096	Cruzer Mini USB Flash	USB 2.0	4GB	√	√	√	√	√	√
Lexar	JD1GB-80-231	1GB USB Flash Drive	USB 2.0	JumpDrive Pro 80X USB Flash Drive	√	√	√	√	√	√
Lexar		Secure II	USB 2.0	1 GB Flash drive	√	√	√	√	√	√
Lexar		Jumpdrive	USB 2.0	256 MB Flash drive	√	√	√	√	√	√
(Generic)		Super Flash Drive	USB 2.0	1 GB Flash drive	√	√	√	√	√	√
(Generic)		Pen Drive 2.0	USB 2.0	2 GB Flash drive	√	√	√	√	√	√
PQI	U3395		USB 2.0	2 GB Flash drive	√	√	√	√	√	√
Teac	CD210PU	CD210PU	External Bootable	48X CD-ROM	√	√	√	√	√	√

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
Teac	FD05PUB	FD05PUB	External Bootable	3.5” Floppy	√	√	√	√	√	√
Teac	FD-05PUW	FD-05PUW	External Bootable – Required for Windows install (“F6”)		√	√				
IOGear	GHD335C80	Ion Drive	External Bootable	80GB HDD	√	√	√	√	√	√
IOGear	GHD335C200	Tri-Select	External Bootable	200GB HDD	√	√	√	√	√	√
Sony	MPF88E/UA/181	2X	USB 2.0	3½" Floppy, USB	√	√	√	√	√	√
QMemory	EXT-MD60		USB 2.0	60 GB External HDD	√					
Smart Modular	SG9ED52M2GGDN	Embedded USB Flash Drive	USB 2.0	Value Solid State Drive 2 GB Low Profile - Requires TMWVSSDRIVE01W (Interposer board, cable, mounting screws) Refer to latest Configuration Guide for more details.	√					
Smart Modular	SG9ED52M4GGCN	Embedded USB Flash Drive	USB 2.0	Value Solid State Drive 4 GB Low Profile - Requires TMWVSSDRIVE01W (Interposer board, cable, mounting screws) Refer to latest Configuration Guide for more details.	√					
Smart Modular	SG9ED52M2GGD	Embedded USB Flash Drive	USB 2.0	Value Solid State Drive 2 GB Low Profile - Requires TMWVSSDRIVE01W (Interposer board, cable, mounting screws) Refer to latest Configuration Guide for more details.	√					

Manufacturer	Model Number	Model Name	Interface	Comments	Microsoft Windows Server 2003, Enterprise Edition, Release 2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)	Red Hat* Enterprise Linux 4.0, Update 4	SUSE Linux Enterprise Server 9, x86, Service Pack 3	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
Smart Modular	SG9ED52M4GGC	Embedded USB Flash Drive	USB 2.0	Value Solid State Drive 4 GB Low Profile - Requires TMWVSSDRIVE01W (Interposer board, cable, mounting screws) Refer to latest Configuration Guide for more details.	√					
Smart Modular	SG9ED52M8GGB	Embedded USB Flash Drive	USB 2.0	Value Solid State Drive 8 GB Low Profile - Requires TMWVSSDRIVE01W (Interposer board, cable, mounting screws) Refer to latest Configuration Guide for more details.	√					
Memorex	MRX523252AJEL-1			External CD-RW	√	√	√	√	√	√
4.9 KVM										
Avocent	4SVPUA10-001	Switchview PC		4 port	√	√	√	√	√	√
Apex		Outlook		8 port	√	√	√	√	√	√

5. Hard Disk Drives

The hard drives listed in the following table have been tested with the server board integrated into the Kontron Carrier Grade Server ***TIGW1U*** and the Kontron IP Network Server ***NSW1U*** by Kontron in its validation labs and/or by individual drive vendors. The following operating system identifiers are used in the table to specify which OS each drive was tested under.

Identifier number / Base Configuration	Operating System
1	Microsoft Windows Server 2003, Enterprise Edition, Release 2
2	Microsoft Windows Server 2003, Enterprise x64 Edition, Release 2
3	Red Hat* Enterprise Linux 4.0, Update 4
4	Red Hat Enterprise Linux 4.0, Update 4 (Intel® EM64T Edition)
5	SUSE Linux Enterprise Server 9, x86, Service Pack 3
6	SUSE Linux Enterprise Server 9, Intel® EM64T®, Service Pack 3
7	SUSE Linux Enterprise Server 10, x86, Service Pack 1
8	SUSE Linux Enterprise Server 10, Intel® EM64T®, Service Pack 1
9	Red Hat* Enterprise Linux 5.0, Update 1 (32 bit)
10	Red Hat Enterprise Linux 5.0, Update 1 (64 bit)
11	SuSE Enterprise Linux 9 SP4 32-bit
12	SuSE Enterprise Linux 9 SP4 64-bit
13	SuSE Enterprise Linux 10 SP2 32-bit
14	SuSE Enterprise Linux 10 SP2 64-bit
15	Red Hat Enterprise Linux 3.8 32-bit
16	Red Hat Enterprise Linux 3.8 64-bit
17	Red Hat Enterprise Linux 4.7 32-bit
18	Red Hat Enterprise Linux 4.7 64-bit
19	Red Hat Enterprise Linux 5.2 32-bit
20	Red Hat Enterprise Linux 5.2 64-bit
21	Red Hat Enterprise Linux 5.4 32-bit
22	Red Hat Enterprise Linux 5.4 64-bit
23	Microsoft Windows Server 2008, Enterprise x64 Edition, Release 2

Note: For the definition of the *Base Configuration* number see the table describing the *Base System Configuration Identifier #* in section two of this document.

Caution: the Kontron IP Network Server ***NSW1U*** tested hardware will only support enterprise class SATA disk drives. Use of drives other than those approved may cause corruption or loss of data.

Note that not all hard drives were tested under all operating systems. The following notation is used in the tested hard drives table below to indicate the support level that Kontron provides for a particular hard drive with a particular operating system:

Number (i.e. 1, 2, 3)	This hard drive has been tested and is supported under the operating system identified by the operating system identification number.
Number in brackets (i.e. [1])	This hard drive has been tested, but is NOT supported under the operating system identified by the operating system identification number.
SD (Similar Drive)	The hard disk drive is supported, but not tested. This hard drive model/capacity has not been tested with this server board, but Kontron will support it based on successful testing of a larger capacity hard drive from the same hard drive family. Kontron has high confidence that this hard drive will function correctly with the server board. This drive uses the exact same firmware and drivers as a larger capacity hard drive that has been successfully tested with this server board. The only difference between this drive and the one that was used in testing is the storage capacity. Kontron provides the same level of support for all hard drives listed in this document, regardless of whether the drive was tested or not. Customers should always test hard drives as part of the final system configuration prior to deployment. Given the fact that a larger capacity hard drive from the same drive family has successfully completed testing on this server board, this particular hard drive capacity point will not be tested.
IHVT (IHV Tested)	The hard disk drive was tested according to Kontron-approved guidelines and test procedures by the Independent Hardware Vendor (IHV) that manufactured the drive. Kontron provides the same level of support for all hard drives listed in this document, regardless of whether the drive was tested in an Kontron lab or not. IHV test reports remain the property of the IHV (Kontron cannot provide copies of these reports).

Manufacturer	Model Number	Product Family	Interface	RPM	Drive size (GB)	Tested Operating Systems	Notes
SAS Hard Drives (TIGW1U)							
Toshiba	MBF2600RC	MBF Series	SAS-600	10K RPM	600GB/ 2.5-inch	1,2,13,14, 19, 20, 21, 22	
Toshiba	MBF2450RC	MBF Series	SAS-600	10K RPM	450GB/ 2.5-inch		SD
Toshiba	MBF2300RC	MBF Series	SAS-600	10K RPM	300GB/ 2.5-inch		SD
Seagate	ST91000640SS	Constellation.2	SAS-600	7200	1 TB / 2.5	13,14,21, 22, 23	0002 fw validated
Seagate	ST9500620SS	Constellation.2	SAS-600	7200	500 GB / 2.5		SD
Seagate	ST9500430SS	Constellation	SAS-300	7200 RPM	500GB	1,2,9,10,19, 20, 21, 22	**0005 fw required**
Seagate	ST9146852SS	Savvio 15K.2	SAS-300	15K RPM	146GB	1,2,9,10,19, 20	
Seagate	ST936751SS	Savvio 15K.1	SAS-300	15K RPM	36GB	1	

Hard Disk Drives

Manufacturer	Model Number	Product Family	Interface	RPM	Drive size (GB)	Tested Operating Systems	Notes
Seagate	ST973451SS	Savvio 15K.1	SAS-300	15K RPM	73GB	SD	SD ST936751SS
Seagate	ST9900805SS	Savvio 10K.5	SAS-600	10K	900 GB / 2.5	13,14,21, 22, 23	0002 fw validated
Seagate	ST9600205SS	Savvio 10K.5	SAS-600	10K	600 GB / 2.5		SD
Seagate	ST9450405SS	Savvio 10K.5	SAS-600	10K	450 GB / 2.5		SD
Seagate	ST9300605SS	Savvio 10K.5	SAS-600	10K	300 GB / 2.5		SD
Seagate	ST9146803SS	Savvio 10K.3	SAS-300	10K RPM	146GB	1,2,5,6	
Seagate	ST9300603SS	Savvio 10K.3	SAS-300	10K RPM	300GB	1,2,7,8	
Seagate	ST973401SS	Savvio 10K.2	SAS-300	10K RPM	73GB		
Seagate	ST973402SS	Savvio 10K.2	SAS-300	10K RPM	73GB	SD	SD ST9146802SS
Seagate	ST9146802SS	Savvio 10K.2	SAS-300	10K RPM	146GB	1	
Seagate	ST973802SS	Savvio 10K.2	SAS-300	10K RPM	73GB	SD	SD ST9146802SS
Seagate	ST936701SS	Savvio 10K.1	SAS-300	10K RPM	36GB		
Seagate	ST973401SS	Savvio 10K.1	SAS-300	10K RPM	73GB		
Fujitsu	MAY2036RC	10K	SAS-300	10K RPM	36GB		
Fujitsu	MAY2073RC	10K	SAS-300	10K RPM	73GB		
Fujitsu	MBB2073RC	10K	SAS-300	10K RPM	73GB	SD	SD MBB2147RC
Fujitsu	MBB2147RC	10K	SAS-300	10K RPM	147GB	1	
Fujitsu	MBC2036RC	AL10Sx	SAS-300	15K RPM	36GB	SD	SD MBC2073RC
Fujitsu	MBC2073RC	AL10Sx	SAS-300	15K RPM	73GB	1	
Hitachi	C10K147	10K	SAS-300	10K RPM	147GB		

Manufacturer	Model Number	Product Family	Interface	RPM	Drive size (GB)	Tested Operating Systems	Notes
SATA Hard Drives (TIGW1U)*							
***Note: SATA HDD's may only be used in TIGW1U in a non-NEBs environment, and in a system compatible with SATA drives, and by selecting the "TIGW1U-SATA" option when updating the FRU/SDR. Double click the paper clip icon below to review the attached PCN.**  PCN108511-00.pdf							
Fujitsu	MHY2200BH	Mercury	SATA-150	5,400	200 GB/ 2.5-inch	SD	SD MHY2250BH
Fujitsu	MHY2250BH	Mercury	SATA-150	5,400	250 GB/ 2.5-inch	1	
Hitachi	HTE542525K9A300	TravelStar E5K250	SATA-300	5,400	250 GB/ 2.5-inch	1	
Hitachi	HTE545050KTA300	TravelStar E5K500	SATA-300	5,400	500 GB/ 2.5-inch	1,3,7,8,9	Pass
Hitachi	HTE722020K9A300	TravelStar 7K200	SATA-300	7,200	200 GB/ 2.5-inch	1,3,7,8,9	Pass
Hitachi	HTE723232L9A300	TravelStar 7K320	SATA-300	7,200	320 GB/ 2.5-inch	1,3,7,8,9	Pass
Seagate	ST9160823AS	Momentus 7200.2	SATA-300	7,200	160 GB/ 2.5-inch	SD	SD MAY2036RC
Seagate	ST9200420AS	Momentus 7200.2	SATA-300	7,200	200 GB/ 2.5-inch	1	
Seagate	ST9320423AS	Momentus 7200.4	SATA-300	7,200	320 GB/ 2.5-inch	1	Pass

Manufacturer	Model Number	Product Family	Interface	RPM	Drive size (GB)	Tested Operating Systems	Notes
SATA Solid State Drives (TIGW1U)							
Intel®	SSDSA2SH032G1GN	Intel® X25-E Solid State Drive	SATA 3Gb/sec	N/A	32 GB/2.5-inch	1,2,11,12,13, 14,15,16,17,1 8,19,20	Pass

Manufacturer	Model Number	Product Family	Interface	RPM	Drive size (GB)	Tested Operating Systems	Notes
SATA Hard Drives (NSW1U)*							
Hitachi	E7k500	Deskstar	SATA-300	7200rpm	500GB		
Western Digital	WD740ADFD	WD Raptor	SATA-150	10K RPM	74GB		
*Note: Double click on the paper clip icon below and view PCN107638-00 before using any HDD below this line. PCN107638-00.pdf							
Hitachi	HUA721010KLA330	Ultrastar A7K1000			1TB	1	
Hitachi	HDS721075KLA330	Deskstar 7K1000	SATA-300	7200rpm	750GB	1	
Seagate	ST500NM0011	Constellation ES	SATA-600	7200 rpm	500GB	1,2,13,14,21, 21	
Seagate	ST3500514NS	Constellation ES	SATA-300	7200 rpm	500GB	1,2,13,14,21, 21	
Seagate	ST3250820NS	Barracuda® ES	SATA-300	7200rpm	250GB		
Seagate	ST3250620NS	Barracuda® ES	SATA-300	7200rpm	250GB	SD	
Seagate	ST3500320NS	Barracuda ES.2	SATA-300	7200rpm	500GB	1	
Western Digital	WD7500AYYS	WD RE2	SATA-300	7200rpm	750GB		
Seagate	ST3250310NS	Barracuda® ES.2	SATA-300	7200rpm	250GB		
Western Digital	WD1601ABYS	WD RE2	SATA-300	7200rpm	160GB	1	
* The Kontron IP Network Server ***NSW1U*** tested hardware will only support enterprise class SATA disk drives. Use of drives other than those approved may cause corruption or loss of data.							

6. Installation Guidelines & Test Notes

6.1 Intentionally Blank