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Digital Rapids Hardware Guide

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For information on the Warranty for the Digital Rapids hardware, please see Appendix A.

Last revised on September 19, 2011.

Table of Contents

Pre-Installation/Assembly Safety Instructions

Before you start the assembly process, you will need to make sure you follow certain basic safety precautions.

CAUTION

Integration/servicing of a chassis sub-assembly shall be performed only by technically qualified persons.

Follow these guidelines to meet and maintain safety and product regulatory requirements when integrating a chassis subassembly.

Read and adhere to all of these instructions and the instructions supplied with this assembly. If you do not follow these instructions, the UL listing and other regulatory approvals will be void, and the product will most likely be non-compliant with regional product laws and regulations.

Use Only for Intended Applications

This product was evaluated as Information Technology Equipment (ITE) that may be installed in offices, schools, computer rooms and similar locations. The suitability of this product for other Product Categories and Environments other than ITE applications, (such as medical, industrial, alarm systems, and test equipment) may require further evaluation.

When you integrate this subassembly, observe all warnings and cautions in the Installation Guide.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

Checking the Power Cord

WARNING

Do not attempt to modify or use the supplied AC power cord if it is not the exact type required.

The power supply cord is the main disconnect to AC power. The socket outlet must be installed near the equipment and readily accessible.

If the power cord supplied with the system is not compatible with the AC wall outlet in your region, get one that meets the following criteria:

The cord must be rated for the available AC voltage and have a current rating that is at least 125% of the current rating of the server.

The plug on the power cord that plugs into the wall outlet must be a grounding-type male plug designed for use in your region. It must have certification marks showing certification by an agency acceptable in your region.

The connector that plugs into the AC receptacle on the power supply must be an IEC 320, sheet C13, type female connector.

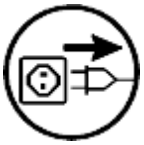
In Europe, the cord must be less than 4.5 meters (14.76 feet) long, and it must be flexible <HAR> (harmonized) or VDE certified cordage to comply with the chassis' safety certifications.

Warnings and Cautions

These warnings and cautions apply whenever you remove the chassis cover to access components inside the server. Only a technically qualified person should integrate and configure the server.

WARNING / BEFORE YOU REMOVE THE ACCESS COVER

Before removing the access cover for any reason, observe these safety guidelines:



1. Turn off all peripheral devices connected to the server.
2. Turn off the server by pressing the power button on the front of the chassis. Then unplug the AC power cord from the chassis or wall outlet.
3. Label and disconnect all peripheral cables and all telecommunication lines connected to I/O connectors or ports on the back of the chassis.
4. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to building ground—any unpainted metal surface on a chassis that is still plugged in—when handling components.

WARNING

The power button on the front panel DOES NOT turn off the AC power.

To remove power from server, you must unplug the AC power cord from the wall outlet or the chassis.

WARNING

Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it. Otherwise, personal injury or equipment damage can result.

WARNING

Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Refer servicing of the power supply to qualified technical service personnel.

Digital Rapids PCI and PCI-e Card Installation

CAUTION

Unplug the power supply cord from the source before removing a server cover or PC cover.

Be sure to touch a grounded item before you touch any components inside the server or PC to discharge any static electricity from your body (for example, any unpainted metal surface on a chassis that is still plugged in using a grounded power cord).

For the PCI DRC-500 you will need to locate a free half-length PCI or PCI-X slot on your motherboard.

For the PCI DRC-1000 to DRC-5650 you will need to locate a free full-length PCI or PCI-X slot on your motherboard.

For the PCI DRC-5650, for HD capture you will need to install the board in a 64 bit slot running at 66 MHz or faster. These slots will typically be PCI-X slots.

For the PCIe DRC-3510, 3550, 6510 and 6550 you will need to locate a free full-length PCI-e slot on your motherboard, x4 or higher.

For the PCIe DRC-2100, 2200, 4100 and 4200 you will need to locate a free half-length half-height PCIe slot, x4 or higher.

Slot selection is motherboard dependant. DRC hardware will function in most slots but for optimal operation choose a slot that does not share resources with other system devices. Consult your motherboard's manual for information about bus sharing.

Once you have located a suitable slot, remove the protective blank bracket (usually a metal plate) for the slot you will be using.

Insert the card's edge connector in the slot while aligning the end of the card bracket in opening.

Firmly and slowly push the card connector into the slot until it is fully seated. Do not twist or bend the card while pushing it into the slot.

Fasten the card's bracket into the case to ensure that the card will not move. Depending on your case the fastener may be a screw or it may be a latch.

Check the air flow in your server or PC to make sure that cables have not moved in such a way to block fans or air flow holes.

Testing Digital Rapids Hardware

When you install the Digital Rapids Stream software a software diagnostic application will be installed. The test app can be found in the Digital Rapids Stream folder (by default in C:\Program Files\Digital Rapids\Stream).

DRC-Stream Boards (PCI Boards)

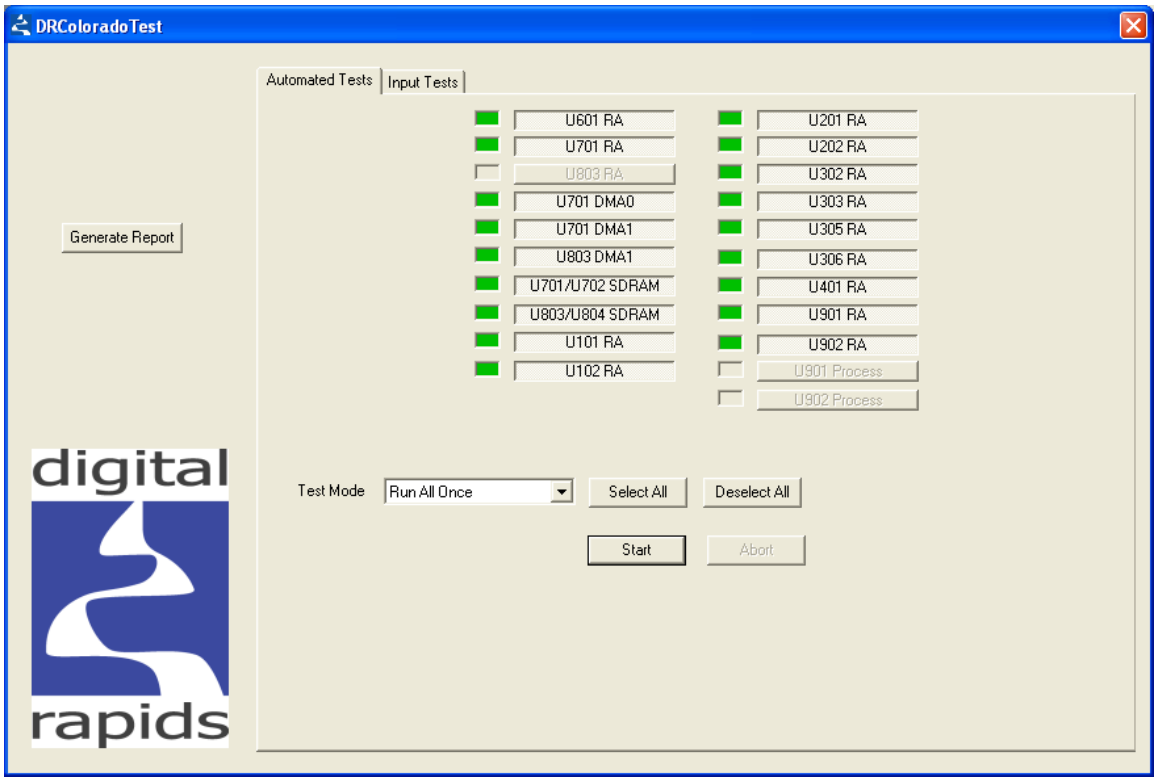
If you have a PCI DRC-500 the test application is called DRIdahoTest.exe.

If you have a PCI DRC-1000 to DRC-2600 the test application is called DRColoradoTest.exe.

If you have a DRC-5650 the test application is called DRUtahTest.exe.

Run the appropriate application. There are two tabs, one for Automated Tests and one for Input Tests. Run the automated test's to verify each hardware segment's functionality.

Input tests are a manual process. Use the Input Test's tab to switch between all valid video and audio inputs to verify each of the Stream inputs are functional.



DRC Flux Boards (PCIe Boards)

If you have a DRC 2100, 2200, 3510, 3550, 6510 or 6550 there will be a shortcut installed in your Start > Programs menu in the Digital Rapids > Hardware Support folder which can be used to launch DRFluxHardwareTest.exe.

If you suspect you have a problem with one of these boards please contact Digital Rapids tech support, as some of these board's automated tests will fail without the expected test signal used as an input.

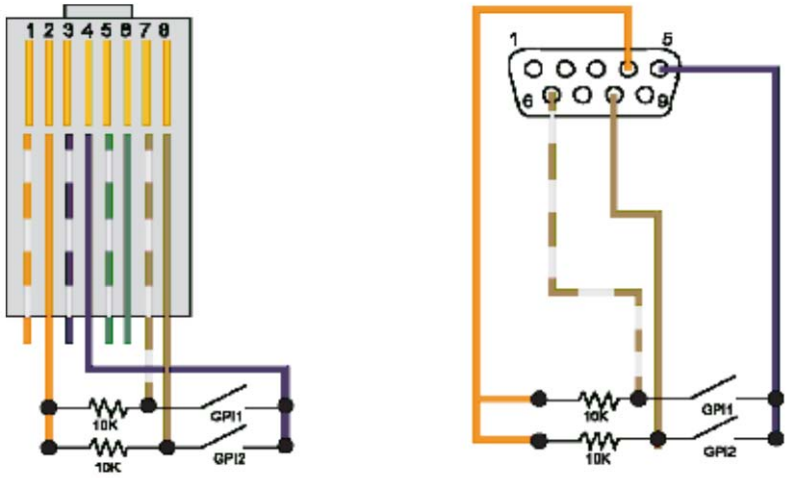
GPI - General Purpose Interface

GPI triggers are physical connections between two pieces of equipment. Typically GPI triggers are based on a change of state on a monitored pin of the serial port. For instance you could create a GPI trigger which was operated by the alarm closure of an alarm system, or a port on a piece of broadcast equipment.

Because of the variety of configurations possible, each GPI cable should be custom manufactured by someone who understands both pieces of equipment to be connected. If you are not comfortable reading electrical schematics, and building custom cables you should provide the included schematic to a qualified technical engineer.

GPI Schematic

Note: GPI requires the installation of a 10k ohm resistor between DSR and DTR and between CTS and DTR. This can be installed in-line in the cable where it is convenient.



Signal Name	Signal Color	RJ45	DB9	Miranda Little Red LTC Reader
SIN	Green/White	6	2	N/C
SOut	White/Green	3	3	N/C
DTR	Orange/White	2	4	N/C
GRND	Blue/White	4	5	White/Violet
DSR	White/Brown	7	6	Violet
RTS	White/Orange	1	7	N/C
CTS	Brown/White	8	8	White/Orange
RIN	White/Blue	5	9	N/C

Digital Rapids StreamZ 3RU System Specifications

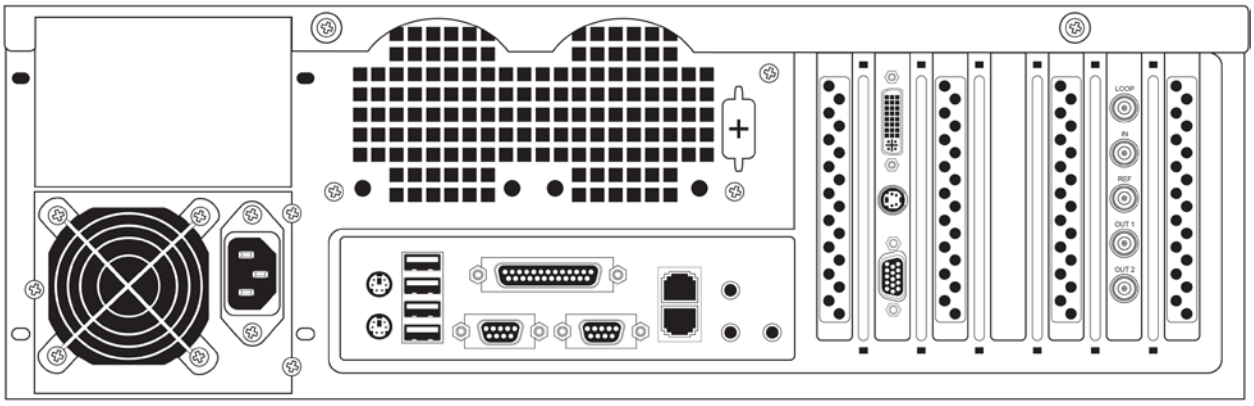
NOTES: **Specifications subject to change without notice.**
Systems may vary from region to region.

Typical StreamZ SD system:

Chenbro 3RU chassis
Physical dimensions: 26”D x 16.9”W x 5.2”H
820W Redundant Power Supply
1x Intel Core2Quad processor
4GB of RAM
1x SATA System Drive
1x SATA Media Drive (8 Drive bays available)
Graphics card with 512MB RAM
DVD/CD +-R/W ROM Drive
Windows 7
Keyboard and Optical Mouse

Typical StreamZ HD system includes:

2x Intel Westmere based processors
6 GB RAM
1x SATA System Drive
8x SATA Media Storage Drives (in a RAID)
Atto RAID controller



Back of 3RU server with DRC-5650 HD board installed

Digital Rapids PCI and PCI-e Card Specifications

DRC-500 PCI SD Board

Form Factor

Half Length, Full Height PCI 64 bit /66Mhz (32bit /33Mhz compatible)

Total power consumption: typical 6.25W; maximum 10W

3.3V	0.9A	3W
5V	0.6A	3W
12V	0.02A	0.25W

Video and Audio Inputs

Supports NTSC and PAL video standards

1 Composite Video (RCA)

1 S-Video (Mini Din)

2 Unbalanced Audio (L+R) on RCA

4 Balanced Stereo Audio inputs on XLR

White: left audio

Red: right audio

Connector for balanced audio

Black: S-Video

Yellow: Composite video

DRC-500 Video and Audio Inputs

Hardware Video Processing

Motion adaptive de-interlacing

Noise reduction (3D and 2D)

Aspect ratio conversion

Cropping and Scaling

Proc amp control

Gamma correction

Graphics overlay with scaling and positioning

Hardware Audio Processing

48kHz - 24 bits/sample

7-band parametric EQ per channel

Dynamic range compression / expansion

Hardware sample rate conversion

Volume control; Bass and Treble control

DRC-1000 to DRC-2600 PCI SD Boards

Form Factor

Full Length, Full Height PCI 64 bit /66Mhz (32bit /33Mhz compatible)

Power Requirements

~ 25 Watts
+3.3V - 3.5A
+5V - 1.5A
-5V - 0A
+12V - 0.5A
-12V - 0.1A

General

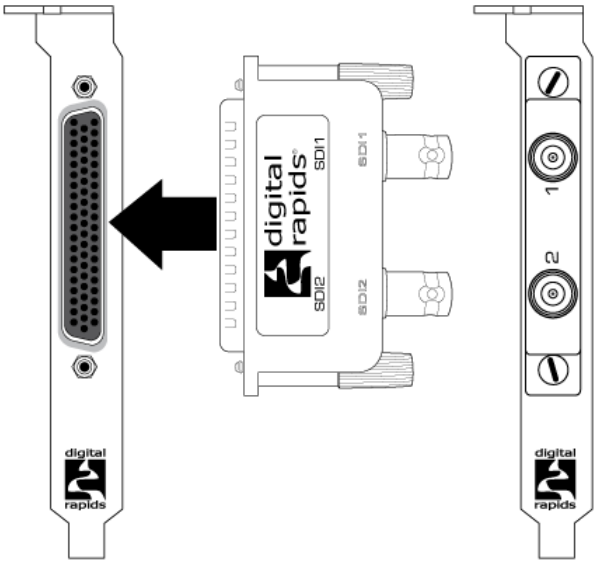
NTSC or PAL inputs (user-selectable)
Up to two video processing channels
Up to 8 mono channels of audio processing.
Full Length PCI Interface - 64 bit 66MHz

Real-Time hardware based video pre-processing (per channel)

Motion adaptive de-interlacing
Vertical Temporal de-interlacing
3:2 and 2:2 film process de-interlacing (inverse telecine)
Arbitrary Shrink/Zoom
3D noise reduction
2D bandwidth limiting (independent horiz and vert)
Aspect Ratio conversion
Graphics overlay
Cropping
Proc-amp controls
Color balance and correction

Real-time Hardware based Audio processing

20 bit internal processing
7- Band Parametric EQ (4/8)
Dynamic Range Compression
Bass and Treble control
4/8 Channel Mix
Volume control



DRC-1600 shown with SDI connector

Analog Video inputs

Composite (BNC)	1V p-p, 75 Ohm
S-Video: (4-Pin Mini-DIN)	
Y Signal	1V p-p, 75 Ohm
C Signal	286mV p-p (NTSC) 300mv p-p (PAL)
Component Betacam (BNC's):	
Y Signal	1V p-p, 75 Ohm
R-Y, B-Y (Pr,Pb)	700mV p-p (NTSC) 525mv p-p (PAL)

Note: Video inputs levels correspond to 75% color bar signal, with 100% white reference bar.

Digital Video inputs (SDI on digital models only)

Serial SDI (SMPTE 259M) (BNC)	800mv, 75 Ohm
DV (on 1500 and 2500 models only)	IEEE-1394

Analog Audio Inputs

Balanced (XLR-F)	+4 dBU Nominal
Unbalanced Line (RCA)	-10 dBV Nominal

Digital Audio Inputs (digital models only)

AES/EBU (EIAJ CP-340, XLR)	5V Balanced, 110 Ohm

Embedded audio conforming to SMPTE-272M is supported on the SDI input.

DV audio supported on DV input. (DV on 1500 and 2500 models only)

DRC-5500 to 5650 PCI HD Boards

Form Factor

Full Length, Full Height PCI 64 bit /66Mhz

For HD capture you will need to install the board in a 64 bit slot running at 66 MHz or faster. These slots will typically be PCI-X slots.

Note: All features of the board may not be enabled in all versions.

HD-SDI and SD-SDI (SMPTE-292M andSMPTE-259M)

Video Recording/Playback

1080i, 1080p, 1080psf, 720p

SD Resolutions: 480i (NTSC), 576i (PAL)

Pixel format: 4:2:2 YCbCr

Full 8 and 10-bit support for all formats

Uncompressed recording/playback

Frame rates: 60Hz, 59.94Hz, 50Hz, 30Hz, 29.97Hz, 25Hz, 24Hz, 23.976Hz

Video Processing Features

Format conversion from any input format to any output format (HD to SD, SD to HD, HD to HD)

Motion adaptive de-interlacing during format conversion

Cropping and scaling

Proc Amp controls

Gamma correction

Filtering and noise reduction

Graphics Overlay

High speed graphics buffer with alpha channel

Overlay graphics during record or playback

Scale and position graphics

Analog Monitor Output

15-pin D type VGA connector (with VGA to BNC adapter cable included)

VESA resolutions up to 1920x1200 at 60 Hz

DRC-5650 Breakout Box

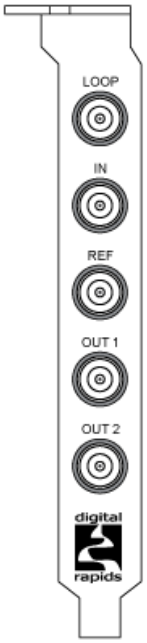
Video Input (on PCI board or Breakout Box)
1 x BNC multi-format HD-SDI and SD-SDI

Audio Inputs (on PCI board or Breakout Box)
Embedded SD SDI audio: 16 channels, 20-bit, 48 kHz
Embedded HD SDI audio: 16 channels, 24-bit, 48 kHz

Audio Inputs (on Breakout Box)
4 x female XLR, AES/EBU Stereo, 24-bit, 32/44.1/48/96 kHz

Genlock Input (on PCI board or Breakout Box)
1 x BNC analog sync
Supports Bi-level or Tri-level sync
Supports all SD and HD formats

Genlock Output (on Breakout Box)
1 x BNC analog sync
Supports Bi-level or Tri-level sync
Supports all SD and HD formats



Connectors on DRC-5650 board

Video Outputs (on PCI board or Breakout Box)
2 x BNC HD/SD output (dual identical outputs for easy distribution)
1 x BNC HD/SD thru (mirrors input)

Audio Outputs (on PCI board or Breakout Box)
Embedded SD SDI audio: 16 channels, 20-bit, 48 kHz
Embedded HD SDI audio: 16 channels, 24-bit, 48 kHz

Audio Outputs (on Breakout Box)
4 x male XLR, AES/EBU Stereo, 24-bit, 32/44.1/48/96 kHz

GPI (on Breakout Box)
2 x RCA female (GPI Inputs)
2 x RCA female (GPI Outputs)

LTC (on Breakout Box)
1 x XLR female (LTC Input)
1 x XLR male (LTC Output)

RS422 (on Breakout Box)
1 x 9-pin D female (master 422, for connection to a deck)
1 x 9-pin D female (slave 422, for connection to an edit controller)

DRC-3510, 3550, 6510 and 6550 PCIe Boards

Note: All features of the board are not enabled in all models.
DRC-3510 and 3550 are SD only boards. DRC-6510 and 6550 are SD and HD boards.

Form Factor: Full Length, Full Height PCI-Express x4

Total power consumption: maximum 25W
- 3.3V 3A 10W
- 12V 2A 14W

Ambient Operating Temperature and Humidity
- Operating temperature: 0-45 degrees C
- Operating Humidity: 10-80%
- Non-operating temperature: -20 to 85 degrees C
- Non-operating humidity: 0-90%

Operating altitude: up to 3000m

Video Resolutions

HD Resolutions: 1080i, 1080p, 1080psf, 720p

SD Resolutions: 480i (NTSC), 576i (PAL)

Pixel format: 4:2:2 YCbCr, 4:4:4 YCbCr, 4:4:4 RGB , 4:4:4:4 YCbCrA, 4:2:2:4 YCbCrA, 4:4:4:4 RGBA (all pixel formats are not enabled on all models)

Full 8 and 10-bit support for all formats; 12-bit support on some models for some formats

Frame rates: 60Hz, 59.94Hz, 50Hz, 30Hz, 29.97Hz, 25Hz, 24Hz, 23.976Hz

Auxiliary Output

9-pin RS-422 (used by Stream for Deck Control)

2 GPI pins

DVI Monitor Output

DVI connector on extra bracket

Computer monitor resolutions up to 1920 x 1200 at 60 Hz, RGB 24 bits

Video Processing Features

Format conversion (e.g., HD to SD, 3G to HD, etc)

Motion adaptive de-interlacing and cadence detection during format conversion

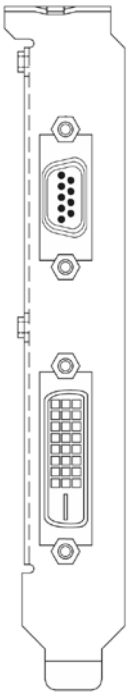
Cropping and scaling

Proc Amp controls

Gamma correction

Color space conversion (601 to/from 709)

Dithering (random and ordered)



Connectors on extra bracket (ports connected to main board via cables)

Graphics Overlay

High speed graphics buffer with alpha channel

Set opacity, fade operation, scale and position graphics

Digital Video Inputs

2 x BNC multi-format SDI inputs used for SD-SDI, HD-SDI, 3G and Dual-Link SDI
Only one SDI input is active at a time except when using Dual-Link SDI

(SMPTE-259M for SD, SMPTE-292M for SD, SMPTE 425M for 3G, SMPTE 372M for dual-link)

Digital Audio Inputs

Embedded audio conforming to SMPTE-272M for SD and SMPTE 299M for HD is supported on the SDI input.

Embedded SD SDI audio: 16 channels, 20-bit, 48 kHz

Embedded HD SDI audio: 16 channels, 24-bit, 48 kHz

Embedded 3G/Dual-Link: 32-channels, 24-bit, 48 kHz

AES/EBU Inputs (only available on breakout cable/box)

4 x BNC, AES/EBU Stereo, 24-bit, 44.1/48/96/192 kHz

IEC958(1) 0.5V single ended 75 ohms

Connectors on DRC-3510 and DRC-6510

Analog Video inputs (only available on breakout cable/box)

Composite (BNC)		1V p-p, 75 Ohm
S-Video: (4-Pin Mini-DIN)		
	Y Signal	1V p-p, 75 Ohm
	C Signal	286mV p-p (NTSC) 300mv p-p (PAL)
Component (BNC's):		
	Y Signal	1V p-p, 75 Ohm
	Cr, Cb	700mV p-p (NTSC) 525mv p-p (PAL)

Note: Video inputs levels correspond to 75% color bar signal, with 100% white reference bar.

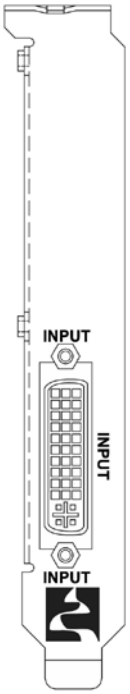
Analog Audio Inputs (only available on breakout cable/box)

Balanced, 24-bit, 44.1/48/96 kHz (XLR, L and R), +4 dBU Nominal

Unbalanced, 24-bit, 44.1/48/96 kHz (RCA, L and R), -10 dBV Nominal

LTC Input (only available on breakout cable/box)

Balanced XLR input



Breakout Connector on DRC-3550 and DRC-6550

DRC-2100, 2200, 4100 and 4200 PCIe Boards

DRC-2100 and 2200 are SD only boards. DRC-4100 and 4200 are SD and HD boards.
DRC-2100 and 4100 are single channel boards. DRC-2200 and 4200 are dual channel boards.

Form Factor: Half Length, Half Height PCI-Express x4

Total power consumption: maximum 25W

- 3.3V 3A 10W
- 12V 2A 14W

Ambient Operating Temperature and Humidity

- Operating temperature: 0-45 degrees C
- Operating Humidity: 10-80%
- Non-operating temperature: -20 to 85 degrees C
- Non-operating humidity: 0-90%

Operating altitude: up to 3000m

Video Resolutions

HD Resolutions: 1080i, 1080p, 1080psf, 720p

SD Resolutions: 480i (NTSC), 576i (PAL)

Pixel format: 4:2:2 YCbCr, 4:4:4 YCbCr, 4:4:4 RGB , 4:4:4:4 YCbCrA, 4:2:2:4 YCbCrA, 4:4:4:4 RGBA (all pixel formats are not enabled on all models)

Full 8 and 10-bit support for all formats; 12-bit support on some models for some formats

Frame rates: 60Hz, 59.94Hz, 50Hz, 30Hz, 29.97Hz, 25Hz, 24Hz, 23.976Hz

Video Processing Features

Format conversion from any input format to any output format (e.g., HD to SD, 3G to HD, etc)

Motion adaptive de-interlacing and cadence detection during format conversion

Cropping and scaling

Proc Amp controls

Gamma correction

601 to/from 709 color space conversion (HD models)

8-bit De-banding, Dithering (random or ordered)

Graphics Overlay

High speed graphic buffers with alpha channel (2 graphics buffers on dual channel boards)

Set opacity, fade operation, scale and position graphics

Digital Video Inputs

2 x BNC multi-format SDI inputs used for SD-SDI, HD-SDI, 3G and Dual-Link SDI

On the DRC-2100 only one SDI input is active at a time

On the DRC-4100 only one SDI input is active at a time except when using Dual-Link SDI

On the DRC-2200 both SDI inputs are active at the same time

On the DRC-4200 both SDI inputs are active at the same time for SD, HD or 3G input (when using two 3G inputs, they must be down-converted on the board to a maximum of 1080i60 4:2:2).

(SMPTE-259M for SD, SMPTE-292M for SD, SMPTE 425M for 3G, SMPTE 372M for dual-link)

Digital Audio Inputs

Embedded audio conforming to SMPTE-272M for SD and SMPTE 299M for HD is supported on the SDI input.

Embedded SD SDI audio: 16 channels, 20-bit, 48 kHz

Embedded HD SDI audio: 16 channels, 24-bit, 48 kHz

Embedded 3G/Dual-Link: 32-channels, 24-bit, 48 kHz

Brackets: A full-height bracket is installed by default. A half-height bracket is also included.

Connectors on DRC-4200/4100 and DRC-2200/2100

Regulatory Certifications and Compliance

The StreamZ chassis complies with the following safety regulations

Safety

U.S., Canada UL1950 - CSA 950 (UL and cUL)
Europe, CE Mark EN60950 (complies with73/23/EEC)
International
IEC60950 (CB Report and Certificate)
Nordic Countries NEMKO / EMKO-TSE (74-SEC) 207/94
Russia GOST 50377-92
Korea K-Mark

Electromagnetic Capability (EMC)

U.S. FCC, Part 15, Class A
Canada ICES-003, Class A
Europe, CE Mark EN55022 (Class A); EN55024 & EN61000-3-2;-3-3
(complies with 89/336/EEC)
International CISPR 22, Class A
Japan VCCI, Class A
Taiwan CNS13438, Class A
Korea RRL, MIC 1997-41 & 1997-42
Russia GOST 29216-91 & 50628-95
Australia/New Zealand AS/NZS 3548 (based on CISPR 22)

Digital Rapids DRC-Stream / Stream Z model DRC-500 complies with the following standards

EMC Standards

European Standard EN 55103-1:1997 and EN 55103-2:1996
Electromagnetic compatibility requirements
Audio, Video equipment for professional use
Immunity characteristics - Limits and methods of measurements

FCC Rules

These devices comply with FCC Part 15, Subpart 15, Subpart B, Class B Computing Devices for Home and Office Use.

Digital Rapids DRC-Stream / Stream Z models DRC-1000, DRC-1500, DRC-2000 and DRC-2500 complies with the following standards

EMC Standards

EN55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Class A.
EN 50082-1	Generic immunity standard.
IEC 1000-4-2 1995-01	Electrostatic discharge requirements “ESD”, 6kV CD, 8kV AD.
IEC 801-3 1984	Radiated. radio frequency electromagnetic field, 3V/m {1kHz 80% AM, 27-1000MHz}
IEC1000-4-4 1995-01	Electrical fast transient requirements “Burst”, 0.5kV Sig. Lines, 1kV Power Line.

Per the provision of the Electromagnetic Compatibility Directive, 89/336/EEC of 3 May 1989 as amended by 92/31EEC of 28 April 1992 and 93/68/EEC, Article 5 of 22 July 1993

FCC Rules

These devices are for professional use only and comply with Part 15 of the FCC rules. Operation is subject to the following two conditions.

1 - These devices may cause interference to Radio and TV receivers in residential areas.

2 - These devices will accept any interference received, including interference that may cause undesired operation.

These devices do not exceed the class A limits for a radio noise emissions from a digital apparatus as set out in the interference standard entitled “Digital Apparatus”, ICES-003 of the Canadian Department of Communications.

Digital Rapids DRC-Stream / Stream Z model DRC-5000 complies with the following standards

EMC Standards

European Standard EN 55103-1:1997 and EN 55103-2:1996
Electromagnetic compatibility requirements
Audio, Video equipment for professional use

European CISPR 22:1997 and EN55022:1998
Class A - Information Technology Equipment.

Warning: This is a class A product. In domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Digital Rapids Flux DRC-3510, DRC-3550, DRC-6510 and DRC-6550 complies with the following standards

CISPR 22:2008-09 / EN 55022:2006, Class A – Information Technology Equipment – Radio Disturbance Characteristics

CISPR 24:1997 +A1:2001 +A2:2002 / EN 55024:1998 +A1:2001 +A2:2003 – Electromagnetic Compatibility Requirements – Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurements

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Federal Communications Commission (FCC)
This product complies with CFR 47, Part 15, Subpart B, Class A – Unintentional Radiators for use in Commercial and Industrial areas.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications not expressly approved by Digital Rapids Corporation could void the user's authority to operate the equipment.

Digital Rapids Flux DRC-2100, DRC-2200, DRC-4100 and DRC-4200 complies with the following standards

The board was tested for immunity compliance against the following standards:

CISPR 22:2006/EN55022:2006 (Class A)

FCC Part 15 Subpart B: 2010

& CISPR 24:1997/EN55024:1998 (+A1 +A2)

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

The board was tested for immunity compliance against the following standards:

VCCI: 2007

This is a Class A product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI).

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

WARNING: English (USA)

The power supply in this product contains no user-serviceable parts. There may be more than one supply in this product. Refer servicing only to qualified personnel.

Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC power cord for each supply.

The power button on the system does not turn off system AC power. To remove AC power from the system, you must unplug each AC power cord from the wall outlet or power supply.

The power cord(s) is considered the disconnect device to the mains (AC) power. The socket outlet that the system plugs into shall be installed near the equipment and shall be easily accessible.

SAFETY STEPS: Whenever you remove the chassis covers to access the inside of the system, follow these six steps:

1. Turn off all peripheral devices connected to the system.
2. Turn off the system by pressing the power button.
3. Unplug all AC power cords from the system or from wall outlets.
4. Label and disconnect all cables connected to I/O connectors or ports on the back of the system.
5. Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground of the system—any unpainted metal surface—when handling components.
6. Do not operate the system with the chassis covers removed.

After you have completed the six previous SAFETY steps, you can remove the system covers. To do this:

1. Unlock and remove the padlock from the back of the system if a padlock has been installed.
2. Remove and save all screws from the covers.
3. Remove the covers.

For proper cooling and airflow, always reinstall the chassis covers before turning on the system. Operating the system without the covers in place can damage system parts. To install the covers:

1. Check first to make sure you have not left loose tools or parts inside the system.
2. Check that cables, add-in boards, and other components are properly installed.
3. Attach the covers to the chassis with the screws removed earlier, and tighten them firmly.
4. Insert and lock the padlock to the system to prevent unauthorized access inside the system.
5. Connect all external cables and the AC power cord(s) to the system.

A microprocessor and heat sink may be hot if the system has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.

Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Dispose of used batteries according to manufacturer’s instructions.

The system is designed to operate in a typical office environment. Choose a site that is:

- Clean and free of airborne particles (other than normal room dust).
- Well ventilated and away from sources of heat including direct sunlight.
- Away from sources of vibration or physical shock.
- Isolated from strong electromagnetic fields produced by electrical devices.
- In regions that are susceptible to electrical storms, we recommend you plug your system into a surge suppresser and disconnect telecommunication lines to your modem during an electrical storm.
- Provided with a properly grounded wall outlet.
- Provided with sufficient space to access the power supply cord(s), because they serve as the product's main power disconnect.

AVERTISSEMENT: Français

Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.

Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.

Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.

CONSIGNES DE SÉCURITÉ -Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes:

1. Mettez hors tension tous les périphériques connectés au système.
2. Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir).
3. Débranchez tous les cordons d'alimentation c.a. du système et des prises murales.
4. Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système.
5. Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier).
6. Ne faites pas fonctionner le système tandis que le boîtier est ouvert.

Une fois TOUTES les étapes précédentes accomplies, vous pouvez retirer les panneaux du système. Procédez comme suit:

1. Si un cadenas a été installé sur à l'arrière du système, déverrouillez-le et retirez-le.
2. Retirez toutes les vis des panneaux et mettez-les dans un endroit sûr.
3. Retirez les panneaux.

Afin de permettre le refroidissement et l’aération du système, réinstallez toujours les panneaux du boîtier avant de mettre le système sous tension. Le fonctionnement du système en l’absence des panneaux risque d’endommager ses pièces. Pour installer les panneaux, procédez comme suit:

1. Assurez-vous de ne pas avoir oublié d’outils ou de pièces démontées dans le système.
2. Assurez-vous que les câbles, les cartes d’extension et les autres composants sont bien installés.
3. Revissez solidement les panneaux du boîtier avec les vis retirées plus tôt.
4. Remettez le cadenas en place et verrouillez-le afin de prévenir tout accès non autorisé à l’intérieur du système.
5. Rebranchez tous les cordons d’alimentation c. a. et câbles externes au système.

Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.

Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.

Le système a été conçu pour fonctionner dans un cadre de travail normal. L'emplacement choisi doit être:

- Propre et dépourvu de poussière en suspension (sauf la poussière normale).
- Bien aéré et loin des sources de chaleur, y compris du soleil direct.
- A l'abri des chocs et des sources de vibrations.
- Isolé de forts champs électromagnétiques géenérés par des appareils électriques.
- Dans les régions sujettes aux orages magnétiques il est recomandé de brancher votre système à un supresseur de surtension, et de débrancher toutes les lignes de télécommunications de votre modem durant un orage.
- Muni d'une prise murale correctement mise à la terre.
- Suffisamment spacieux pour vous permettre d'accéder aux câbles d'alimentation (ceux-ci étant le seul moyen de mettre le système hors tension).

Warranty

Limited Warranty for Digital Rapids Flux, DRC-Stream/StreamZ

Digital Rapids warrants that the products (defined herein as Flux, DRC-Stream / StreamZ and all of its various components and software delivered with or as part of the Products) to be delivered hereunder, if properly used and installed, will be free from defects in material and workmanship and will substantially conform to Digital Rapids specifications for a period of two (2) years after the date the Product was purchased from a Digital Rapids authorized distributor. Software of any kind delivered with or as part of products is expressly provided “as is” unless specifically provided for otherwise in any software license accompanying the software.

If any Product furnished by Digital Rapids which is the subject of this Limited Warranty fails during the warranty period for reasons covered by this Limited Warranty, Digital Rapids, at its option, will:

- REPAIR the Product by means of hardware and/or software; OR
- REPLACE the Product with another

If such Product is defective, transportation charges for the return of Product to buyer within North America will be paid by Digital Rapids. For all other locations, the warranty excludes all costs of shipping, customs clearance, and other related charges. Digital Rapids will have a reasonable time to make repairs or to replace Product. In no event will Digital Rapids be liable for any other costs associated with the replacement or repair of Product, including labor, installation or other costs incurred by buyer and in particular, any costs relating to the removal or replacement of any product soldered or otherwise permanently affixed to any printed circuit board. This Limited Warranty, and any implied warranties that may exist under some United States laws, apply only to the original purchaser of the Product.

Extent of Limited Warranty

Digital Rapids does not warrant that Products to be delivered hereunder, whether delivered stand-alone or integrated with other Products, including without limitation semiconductor components, will be free from design defects or errors known as “errata”. Current characterized errata are available upon request. This Limited Warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation, or improper testing.

Warranty Limitations and Exclusions

These warranties replace all other warranties, expressed or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Digital Rapids makes no expressed warranties beyond those stated here. Digital Rapids disclaims all other warranties, expressed or implied including, without limitation, implied warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not allow the exclusion of implied warranties, so this limitation may not apply. All expressed and implied warranties are limited in duration to the limited warranty period. No warranties apply after that period. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so this limitation may not apply to you.

Limitations of Liability

Digital Rapids responsibility under this, or any other warranty, implied or expressed, is limited to repair or replacement as set forth above. These remedies are the sole and exclusive remedies for any breach of warranty. Digital Rapids is not responsible for direct, special, incidental, or consequential damages resulting from any breach of warranty under another legal theory including, but not limited to, lost profits, downtime, goodwill, damage to or replacement of equipment and property, and any costs of recovering, reprogramming, or reproducing any program or data stored in or used with a system containing this product. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This limited warranty gives you specific legal rights, and you may also have other rights that vary from jurisdiction to jurisdiction. Any and all disputes arising under or related to this Limited Warranty shall be adjudicated in the following forums and governed by the following laws: for the United States of America, Canada, North America and South America, the forum shall be Toronto Canada and the applicable law shall be that of the City of Toronto, Canada. For Europe and the rest of the world, the forum shall be London UK and the applicable law shall be that of the United Kingdom. In the event of any conflict between the English language version and any other translated version(s) of this Limited Warranty, the English language version shall control.

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