



The Power Behind the Storage

## GPU-Accelerated Noise and Grain Reduction Solutions

Real time 16-bit 4K video processing with ATTO, NVIDIA® and Wavelet Beam®

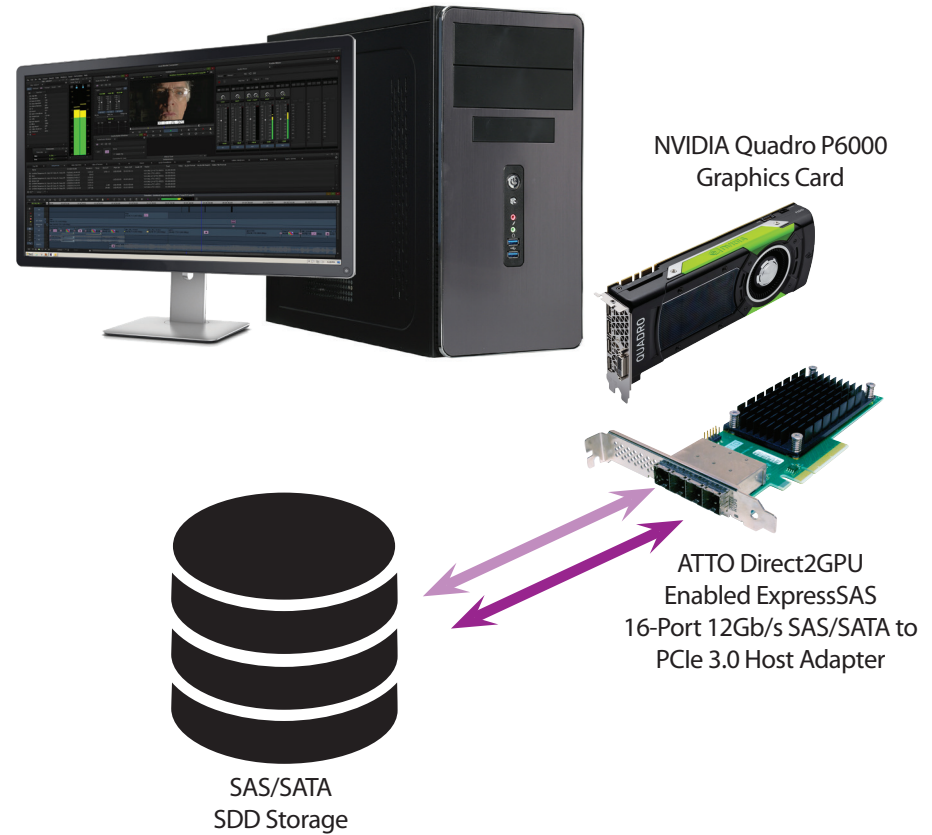
Wavelet Beam high-fidelity Grain & Noise Reducer software eliminates noise and grain in film and video content. Their unique and high-performance de-noising algorithms provide:

- Real time 16-bit video preview window
- Ultra low bitrate encoding and high-fidelity image processing up to 8K
- Fully automatic de-noising and dynamic noise equalization without the need for re-texturing

ATTO Direct2GPU™ accelerates data transfers between ATTO storage adapters and NVIDIA® GPUs, eliminating bottlenecks caused by unnecessary system memory copies. This increases overall performance and efficiency while freeing up bandwidth for additional applications and ensuring that the GPU isn't waiting for data.

- Direct2GPU guarantees that GPUs are able to operate at peak efficiency, that CPU bandwidth isn't unnecessarily burdened and that the PCIe bus doesn't needlessly become clogged with traffic.

Workstation Running WaveletBeam Grain & Noise Reducer Software Application and ATTO Direct2GPU driver



Adding Intelligence and Performance to Your Workflow. | [www.atto.com](http://www.atto.com) | +1.716.691.1999

## ATTO Celerity™ 32Gb Fibre Channel Host Bus Adapters

Product Features	FC-324E	FC-322E	FC-321E
Part Number	CTFC-324E-000	CTFC-322E-000	CTFC-321E-000
Fibre Channel Ports	4	2	1
Max. Data Rate	32Gb/s	32Gb/s	32Gb/s
Max. Transfer Rate	12800MB/s	6400MB/s	3200MB/s
Bus Type	PCIe 3.0 x16	PCIe 3.0 x8	PCIe 3.0 x8
Auto Negotiation	32Gb, 16Gb, 8Gb	32Gb, 16Gb, 8Gb	32Gb, 16Gb, 8Gb
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Max. Cable Length (OM3)	100m - 16Gb 50m - 32Gb	100m - 16Gb 50m - 32Gb	100m - 16Gb 50m - 32Gb
Low-Profile Form Factor	No	Yes	Yes
Developer's Kit <sup>1</sup> (Target Mode API)	Yes	Yes	Yes
Warranty	3 year	3 year	3 year

## ATTO Celerity™ 16Gb Fibre Channel Host Bus Adapters

Product Features	FC-164P	FC-162P	FC-161P
Part Number	CTFC-164P-000	CTFC-162P-000	CTFC-161P-000
Fibre Channel Ports	4	2	1
Max. Data Rate	16Gb/s	16Gb/s	16Gb/s
Max. Transfer Rate	6400MB/s	3200MB/s	1600MB/s
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Auto Negotiation	16Gb, 8Gb, 4Gb	16Gb, 8Gb, 4Gb	16Gb, 8Gb, 4Gb
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Max. Cable Length (OM3)	150m - 8Gb 100m - 16Gb	150m - 8Gb 100m - 16Gb	150m - 8Gb 100m - 16Gb
Low-Profile Form Factor	Yes	Yes	Yes
Developer's Kit <sup>1</sup> (Target Mode API)	Yes	Yes	Yes
Warranty	3 year	3 year	3 year

## ATTO Celerity™ 8Gb Fibre Channel Host Bus Adapters

Product Features	FC-84EN	FC-82EN	FC-81EN
Part Number	CTFC-84EN-000	CTFC-82EN-000	CTFC-81EN-000
Fibre Channel Ports	4	2	1
Max. Data Rate	8Gb/s	8Gb/s	8Gb/s
Max. Transfer Rate	3200MB/s	1600MB/s	800MB/s
Bus Type	PCIe 2.0 x8	PCIe 2.0 x8	PCIe 2.0 x8
Auto Negotiation	8Gb, 4Gb, 2Gb	8Gb, 4Gb, 2Gb	8Gb, 4Gb, 2Gb
Connector Type	Optical SFP+ LC	Optical SFP+ LC	Optical SFP+ LC
Max. Cable Length (OM3)	500m - 2Gb 380m - 4Gb 150m - 8Gb	500m - 2Gb 380m - 4Gb 150m - 8Gb	500m - 2Gb 380m - 4Gb 150m - 8Gb
Low-Profile Form Factor	No	Yes	Yes
Developer's Kit <sup>1</sup> (Target Mode API)	Yes	Yes	Yes
Warranty	3 year	3 year	3 year

<sup>1</sup> Available for qualified OEM sales only. Please contact your ATTO representative. Compatible cables & accessories available.

## ATTO ExpressSAS® SAS/SATA Host Bus Adapters

Product Features	H12F0	H120F	H1280	H1208
Part Number	ESAH-12F0-000	ESAH-120F-000	ESAH-1280-000	ESAH-1208-000
SAS/SATA Ports	16	16	8	8
Port Config. (Ext/Int)	16/0	0/16	8/0	0/8
Max. Data Rate	12Gb/s	12Gb/s	12Gb/s	12Gb/s
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8	PCIe 3.0 x8
Connector Type	(4) 12Gb mini SAS HD (x4) SFF 8644 External	(4) 12Gb mini SAS HD (x4) SFF 8643 Internal	(2) 12Gb mini SAS HD (x4) SFF 8644 External	(2) 12Gb mini SAS HD (x4) SFF 8643 Internal
Max. Cable Length (SAS/SATA) <sup>1</sup>	100m/1m	100m/1m	100m/1m	100m/1m
Low-Profile Form Factor	Yes	Yes	Yes	Yes
Developer's Kit <sup>2</sup> (Target Mode)	Yes	Yes	Yes	Yes
End Devices Supported	2048	2048	1024	1024
Warranty	3 year	3 year	3 year	3 year

Product Features	H1244	H1288
Part Number	ESAH-1244-000	ESAH-1288-000
SAS/SATA Ports	8	16
Port Config. (Ext/Int)	4/4	8/8
Max. Data Rate	12Gb/s	12Gb/s
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8
Connector Type	(1) 12Gb miniSAS HD (x4) SFF 8644 External (1) 12Gb miniSAS HD (x4) SFF 8643 Internal	(2) 12Gb miniSAS HD (x4) SFF 8644 External (2) 12Gb miniSAS HD (x4) SFF 8643 Internal
Max. Cable Length (SAS/SATA) <sup>1</sup>	100m/1m	100m/1m
Low-Profile Form Factor	Yes	Yes
Developer's Kit <sup>2</sup> (Target Mode)	Yes	Yes
End Devices Supported	1024	1024
Warranty	3 year	3 year

Product Features	H680	H608	H644
Part Number	ESAS-H680-000	ESAS-H608-000	ESAS-H644-000
SAS/SATA Ports	8	8	8
Port Config. (Ext/Int)	8/0	0/8	4/4
Max. Data Rate	6Gb/s	6Gb/s	6Gb/s
Bus Type	PCIe 2.0 <sup>3</sup> x8	PCIe 2.0 <sup>3</sup> x8	PCIe 2.0 <sup>3</sup> x8
Connector Type	(2) 6Gb mini SAS (x4) SFF 8088 External	(2) 6Gb mini SAS (x4) SFF 8087 Internal	(1) 6Gb mini SAS (x4) SFF 8088 External (1) 6Gb mini SAS (x4) SFF 8087 Internal
Max. Cable Length (SAS/SATA) <sup>1</sup>	10m/1m	10m/1m	10m/1m
Low-Profile Form Factor	Yes	Yes	Yes
Developer's Kit <sup>2</sup> (Target Mode)	Yes	Yes	Yes
End Devices Supported	1024	1024	1024
Warranty	3 year	3 year	3 year

<sup>1</sup> 10m maximum for 12Gb passive copper cables; ATTO supports up to 100m max for active optical cables.

<sup>2</sup> Available for qualified OEM sales only. Please contact your ATTO representative.

<sup>3</sup> Cross-compatible with PCIe 3.0.