ADVANTECH

Enabling an Intelligent Planet

NVIDIA GT730 D3 1024MB

VHDCI to 4 DVI-D

PCIe® ADD-IN BOARD

Datasheet

Advantech model number:

AEGX-N0A4-V4LMS1

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1. Feature

Model Name	AEGX-N0A4-V4LMS1
Graphics Processing Unit	
GPU	GT730(GK208)
Process Technology	28 nm
Graphics Engine Operating Frequency (max)	902 MHz
Form Factor	Low profile (114.3X68.91 mm)
Card Interface	PCI Express® 2.0 (X8)
CUDA Cores	384
Texture Fill Rate(billion/sec)	14.4
DirectX® capability	DirectX® 12
Shader Model	Shader Model 5.0
OpenGL	OpenGL™ 4.4
Video Decoder	H.264, VC-1, MPEG-2, MPEG-4 part 2 decode, MVC, 3D Blu Ray
Memory	
Memory Operating Frequency (max)	900 MHz / 1.8 Gbps
Configuration, type	64-bit wide, 1 GB, DDR3
Display Interface	
DVI-D	4

2. Functional Overview

2.1. GPU Block diagram

Figure 1.1 shows a simplified block diagram of the GK208 GPUs.

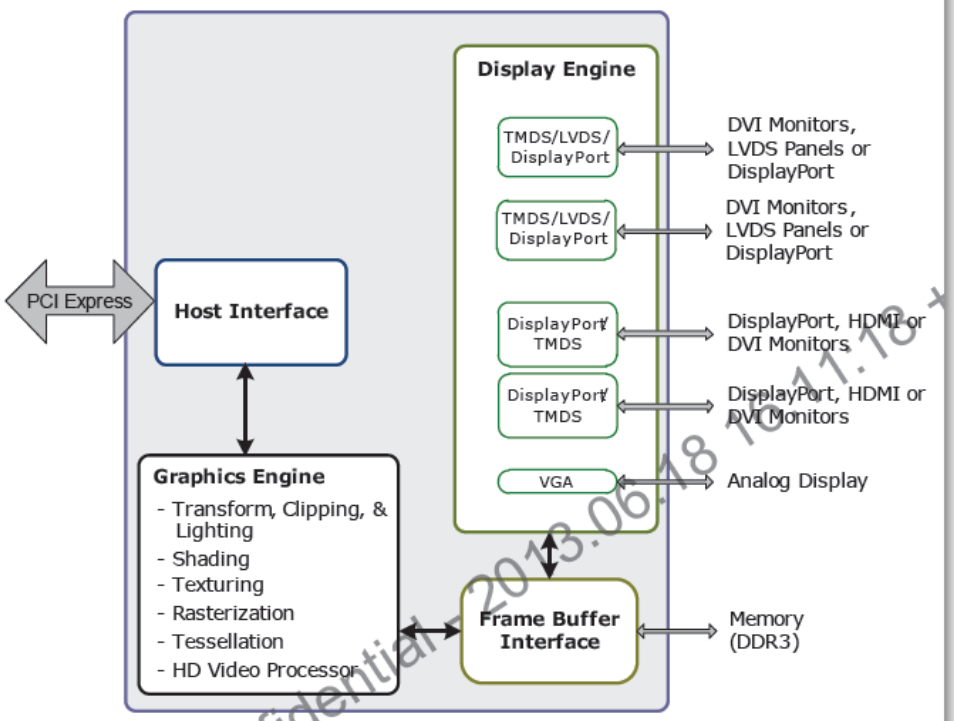


Figure 1.1 GK208 GPUs Simplified Block Diagram

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2.2. KEY FEATURES

GPU

- Core clock: 902 MHz
- Voltage: 0.8125 V – 1.1375V ± 2%
- Pckage size:23mm x 23mm, 595-ball FCBGA(GB2-64)

Board

- 4-layer printed circuit board (PCB)
- PCI Express 2.0, 8 lanes
- Physical dimessions:2.713 inches x 4.5 inches
- Board power: 25 W
- High definition digital content protection (HDCP) support

2.3. Memory

- Memory clock: 1800MHz
- Interface: 64 bit
- Local frame buffer 1 GB (4pieces 128M X 16 GDDR3, FBGA-170 package)

2.4. Features and Technologies

- Fully DirectX® 12 compliant and Shader Model 5.0
- OpenGL 4.4
- NVIDIA® Ageia PhysX™ technology
- NVIDIA® CUDA technology

2.5. Display Support

- Support Multi Monitor
- Support 4 DVI-D through VHDCI
- DVI-D Resolution 1920x1200

2.6. Video

The following video formats are supported:

- MPEG-2
- MPEG-4 Part 2 Advanced Simple Profile
- H.264 SVC codec support
- Support for 3D Blu Ray
- VC1
- DivX version 3.11 and later
- MVC

A full range of video resolutions are supported including 1080p, 1080i, 720p, 480p and 480i .

2.7. Bus Support Features

- Compliant with the PCI Express® Base Specification Revision 2.0, up to 1.8 GT/s
- Supports ×1, ×2, ×4, and ×8 lane widths.
- Supports 900 GT/s, and 1.8 GT/s link-data rates.
- Supports ×8 lane reversal where the receivers on lanes 0 to 7 on the graphics endpoint are

mapped to the transmitters on lanes 7 down to 0 on the root complex.

- Supports ×8 lane reversal where the transmitters on lanes 0 to 7 on the graphics endpoint are mapped to the receivers on lanes 7 down to 0 on the root complex (requires corresponding support on the root complex).
- Supports full-swing and low-swing transmitter output levels.

3. PIN Assignment and Description

3.1 DVI-D Header Pinout

Pin	Signal	Pin	Signal
1	TMDS data 2-	13	NC
2	TMDS data 2+	14	+5VDC power
3	TMDS data 2/4 shield	15	Ground (Return for +5)
4	NC	16	Hot plug detected
5	NC	17	TMDS data 0-
6	DDC clock	18	TMDS data 0+
7	DDC data	19	TMDS data 0/5 shield
8	NC	20	NC
9	TMDS data 1-	21	NC
10	TMDS data 1+	22	TMDS clock shield
11	TMDS data 1/3 shield	23	TMDS clock+
12	NC -	24	TMDS clock-

4. Power Specifications

Parameter	Value	Unit
Input Board Power (Estimated)		
PCI Express edge connector (12V)	1.4	A
(estimated input power)	17	W
PCI Express edge connector (3V3)	1.8	A
(estimated input power)	6	W
Total estimated input graphics power (estimated TGP)	23	W

Component Power (Estimated)		
GPU (TDP, estimated)	16	W
Memory power (estimated; eight components)	1.1	W
Power supplies	3.9	W
Fan, PCB and other losses	2	W

5. Thermal Specifications

Parameter	Value	Unit
Fan inlet temperature (max.)	55	˚C
GPU slowdown temperature (max.Tj)	98	˚C
GPU shutdown temperature (max.)	105	˚C
GPU junction temperature (estimated)	90	˚C

6. Output configuration and Board Dimension

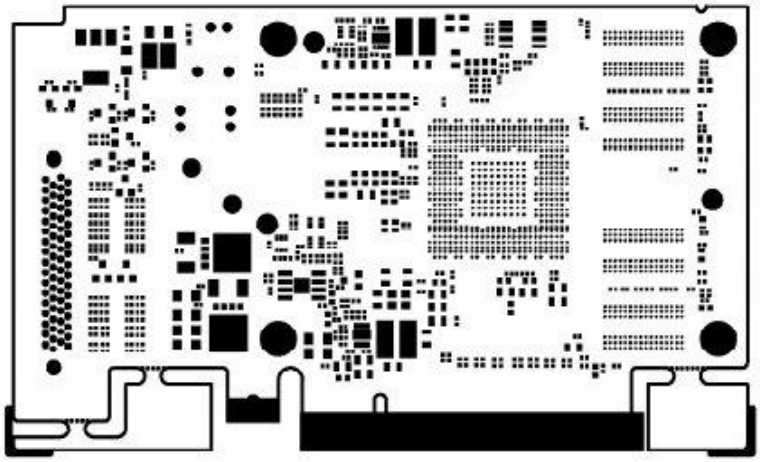
6.1. Output Configuration

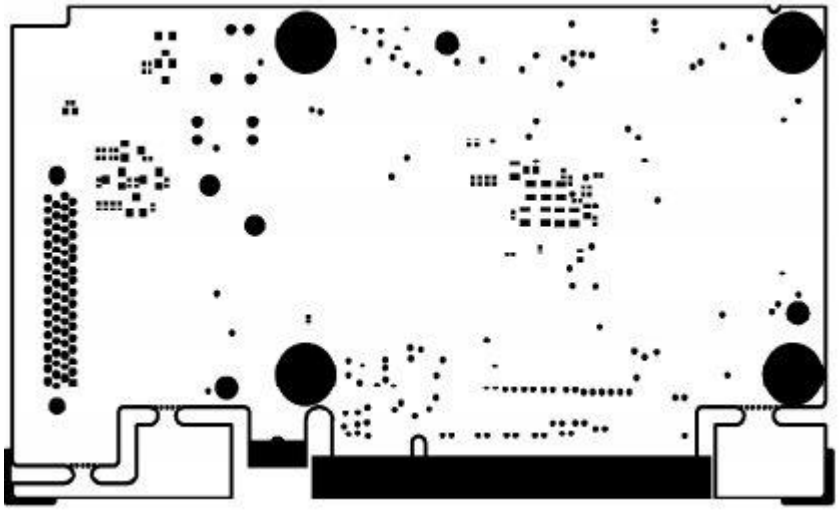




6.2 Board Dimension

114.3 (L) X 68.91 (W) mm, Tolerances : +/- 0.13 mm

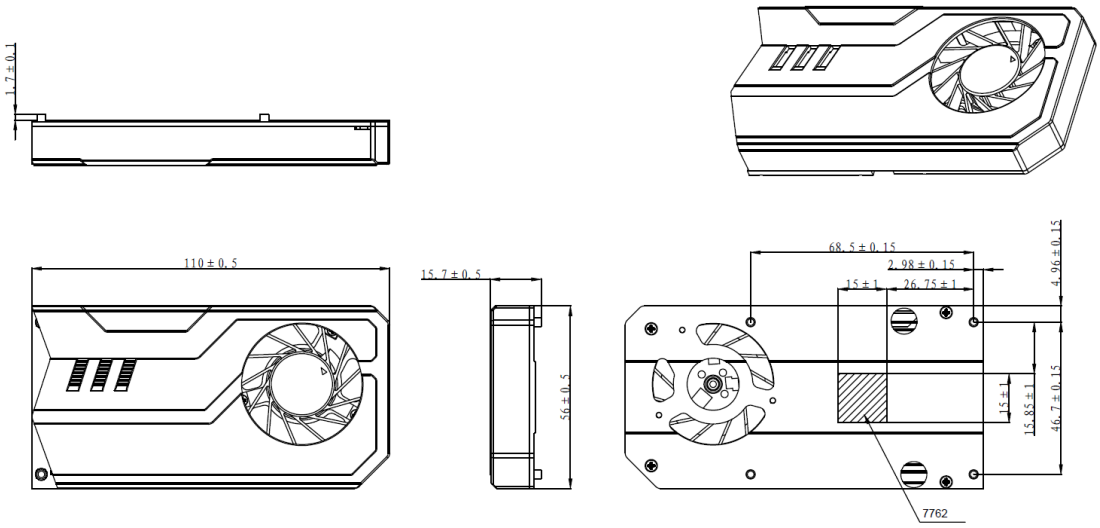


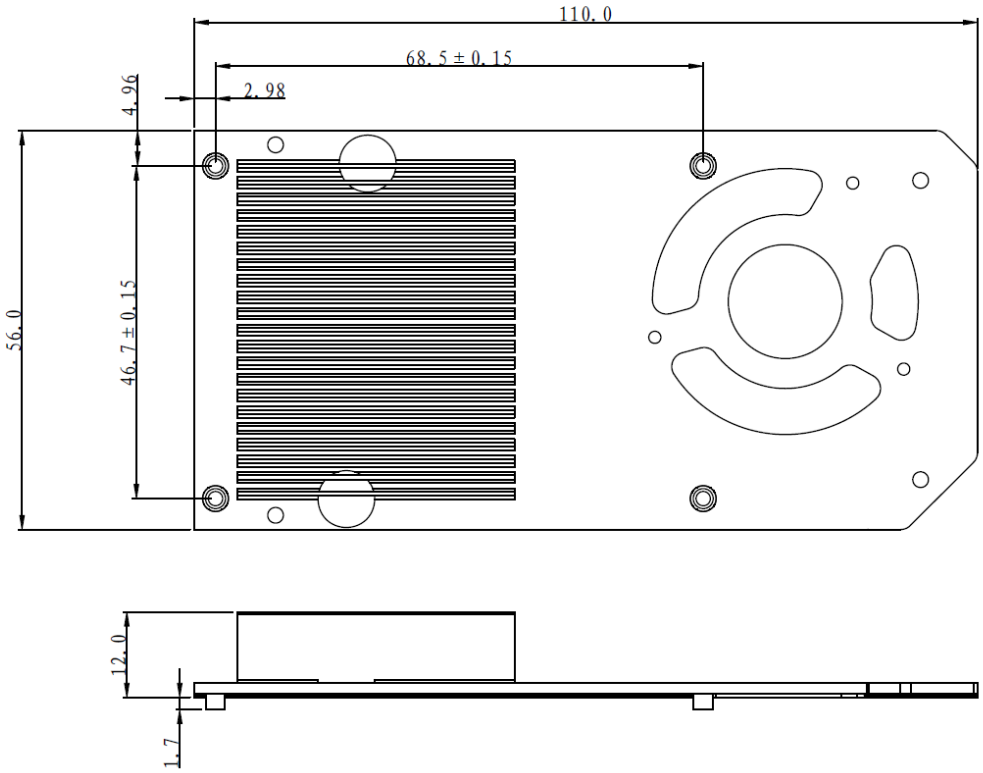


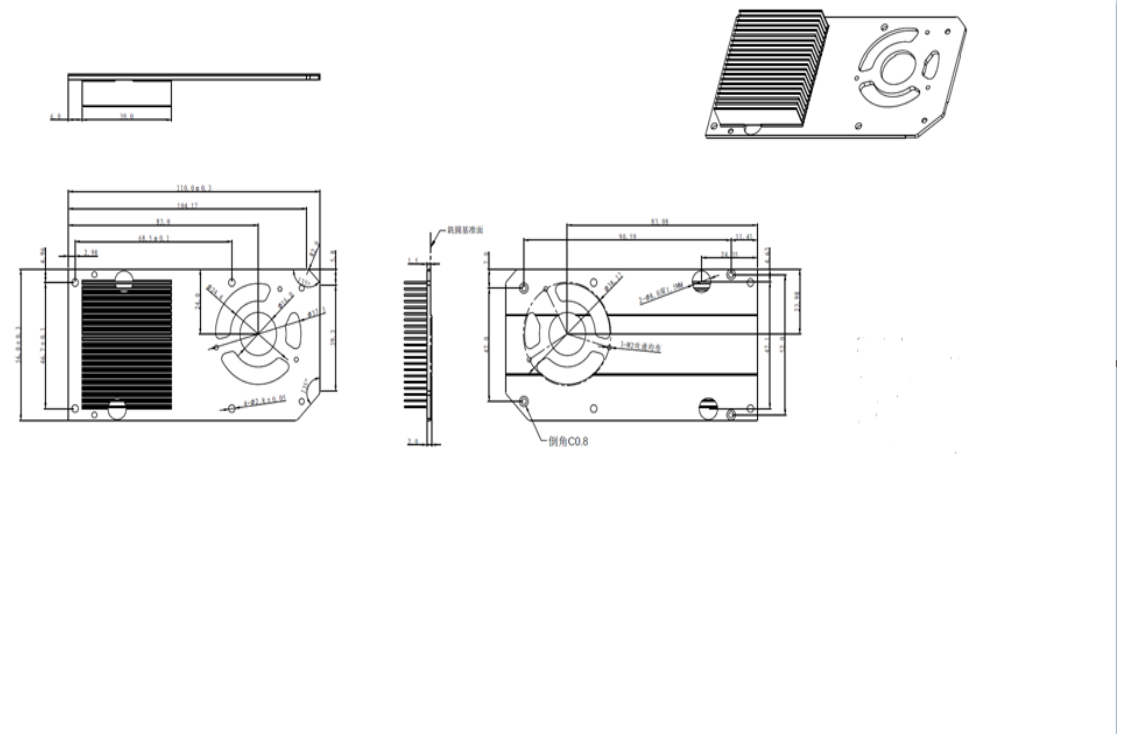
6.3. VHDCI to 4 DVI-D Cable



7. Thermal Mechanism






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8 Order Information

Model	GPU	Form Factor	Memory	DVI-D	Bracket	Thermal Solution	Remark
AEGX-N0A4-V4LMS1	GT730	ATX (114.3 X 68.91 mm)	64-bit wide, 1 GB, DDR3	4	Full Height / Low Profile	Fansink	PCI-E 16X

9 Change Log Update History

Rev.	Data	History
0.1	2014/12/30	1st Draft
0.2	2015/09/15	Add Item8: Order Information