

# **NVIDIA GT730 2048MB GDDR5 PCIe® ADD-IN BOARD**

**Model number: GFX-NG730L16-5C1**

**MPN: 1A1-E000916ADP**



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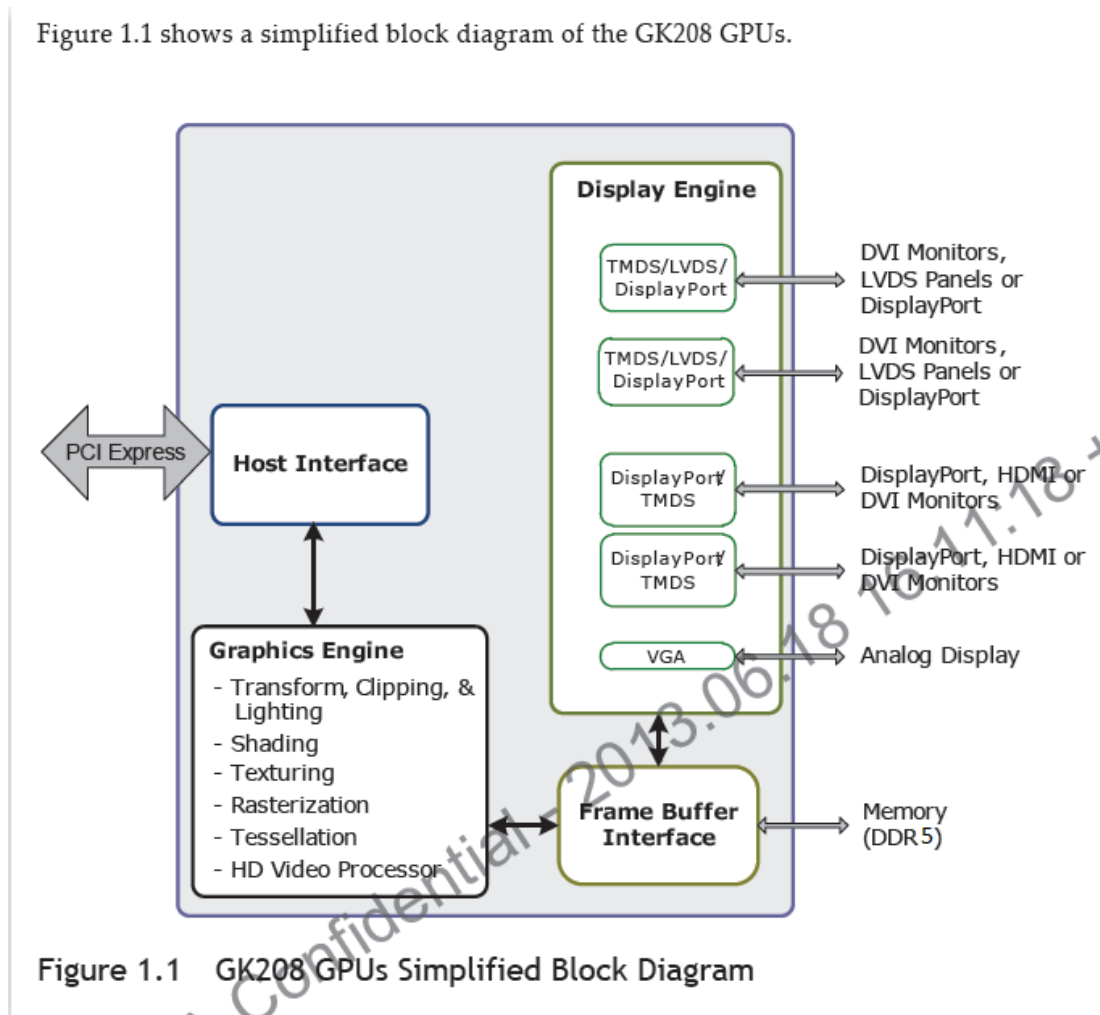
## 1. Feature

<b>Model Name</b>	<b>GFX-NG730L16-5C1</b>
<b>Graphics Processing Unit</b>	
<b>GPU</b>	GeForce GT730 (GK208)
<b>Process Technology</b>	28 nm
<b>Graphics Engine Operating Frequency (max)</b>	902 MHz
<b>Form Factor</b>	Low profile (145 x 69 mm)
<b>Card Interface</b>	PCI Express® 2.0 (x8) PCI Express x16 Length
<b>CUDA Cores</b>	384 CUDA
<b>Floating Point Performance</b>	692 GFLOPs
<b>DirectX® capability</b>	DirectX® 12 (Feature Level 11.0)
<b>OpenGL</b>	OpenGL™ 4.4
<b>Video Decoder</b>	NVDEC support
<b>Memory</b>	
<b>Memory Clock</b>	2500 MHz/ 5.0 Gbps
<b>DDR Type</b>	GDDR5
<b>Memory Bus</b>	64-bit
<b>Memory Size</b>	2048MB
<b>Display Interface</b>	
<b>Display Output</b>	Dual Link DVI-D, HDMI, VGA
<b>Multi-Display</b>	3
<b>Board spec.</b>	
<b>External Power</b>	No
<b>Power Consumption</b>	32W
<b>Operating Temperature</b>	0°C~50°C
<b>Dimensions</b>	145 x 69mm

## 2. Functional Overview

### 2.1. GPU Block diagram

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



## 2.2. KEY FEATURES

### GPU

- ▶ Core clock: 902 MHz
- ▶ Voltage: 0.9 V – 1.188V ± 2%
- ▶ Package size: 23mm x 23mm, 595-ball FCBGA

### Board

- ▶ 4-layer printed circuit board (PCB)
- ▶ PCI Express 2.0, 8 lanes
- ▶ Physical dimensions: 145 x 69 mm
- ▶ Board power: 25 W

## 2.3. Memory

- ▶ Memory clock: 2500 MHz
- ▶ Interface: 64 bit
- ▶ Local frame buffer 2 GB (4pieces 128M X 32 GDDR5)

## 2.4. Features and Technologies

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

## 2.5. Display Support

- ▶ Support Multi Monitor
- ▶ DVI-D: Dual-link resolution 2560 x 1600MHz @60 Hz refresh rate
- ▶ HDMI: Support maximum resolution 4096x2160 (4K)@60Hz refresh rate
- ▶ 400MHz integrated RAMDAC; Maximum VGA Resolution 2048x1536
- ▶ Support HDCP

## 2.6. Digital Audio

- ▶ Supports for HD Audio over PCI Express
- ▶ Support for secure premium audio (e.g. 7.1 Audio)
- ▶ Data rates up to 192KHz
- ▶ Word sizes of 16-bit, 20bit, and 24-bit

## 2.7. Video

- ▶ NVIDIA Video Decoder (NVDEC) support

### **3. PIN Assignment and Description**

#### **3.1. DVI-D Connector Pinout**

Pin	Signal	Pin	Signal
1	TMDS data 2-	13	TMDS data 3+
2	TMDS data 2+	14	+5VDC power
3	TMDS data 2/4 shield	15	Ground (Return for +5)
4	TMDS data 4-	16	Hot plug detected
5	TMDS data 4+	17	TMDS data 0-
6	DDC clock	18	TMDS data 0+
7	DDC data	19	TMDS data 0/5 shield
8	Analog vertical sync	20	TMDS data 5-
9	TMDS data 1-	21	TMDS data 5+
10	TMDS data 1+	22	TMDS clock shield
11	TMDS data 1/3 shield	23	TMDS clock+
12	TMDS data 3-	24	TMDS clock-
C1	Analog red	C4	Analog horizontal sync
C2	Analog green	C5	Analog ground (RGM return)
C3	Analog blue		

#### **3.2. HDMI Connector Pinout**

Pin	Signal	Pin	Signal
1	TMDS Data 2+	11	TMDS Clock Shield
2	TMDS Data 2 Shield	12	TMDS Clock-
3	TMDS Data 2-	13	No Connect
4	TMDS Data 1+	14	No Connect
5	TMDS Data 1 Shield	15	DDC Clock
6	TMDS Data 1-	16	DDC Data
7	TMDS Data 0+	17	Ground
8	TMDS Data 0 Shield	18	+5V Power
9	TMDS Data 0-	19	Hot Plug Detect

10	TMDS Clock+		
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### 3.3. VGA Connector Pinout

Pin	Signal	Description
1	Red	Red
2	Green	Green
3	Blue	Blue
4	Reserved	Macintosh sense , RW
5	Ground	DDC return
6		Red ground
7		Green ground
8		Blue ground
9	+5V	DDC power
10	SGND	Sync ground
11	ID0	Monitor ID bit 0 (Opt)
12	SDA	Serial data (DDC2B)
13	HSYNC	Horizontal sync
14	VSYNC	Vertical sync
15	SCL	Serial clock (DDC2B)

### 3.4. VGA Header Pinout

Pin	Signal	Description
1	SCL	Serial clock (DDC2B)
2	SDA	Serial data (DDC2B)
3	+5V	DDC power
4	VSYNC	Vertical sync
5	HSYNC	Horizontal sync
6	GND	Ground
7	Red	Red
8	GND	Ground
9	Green	Green
10	GND	Ground
11	Blue	Blue



12	GND	Ground
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## 4. Power Specifications

Parameter	Value	Unit
<b>Input Board Power (Estimated)</b>		
PCI Express edge connector (12V) (estimated input power)	2.58	A
	29.67	W
PCI Express edge connector (3V3) (estimated input power)	0.75	A
	2.43	W
Total estimated input graphics power (estimated TGP)	32.27	W

## 5. Thermal Specifications

Parameter	Value	Unit
Fan inlet temperature (max.)	55	°C
GPU slowdown temperature (max. Tj)	98	°C
GPU shutdown temperature (max.)	101	°C
GPU junction temperature (estimated)	82	°C

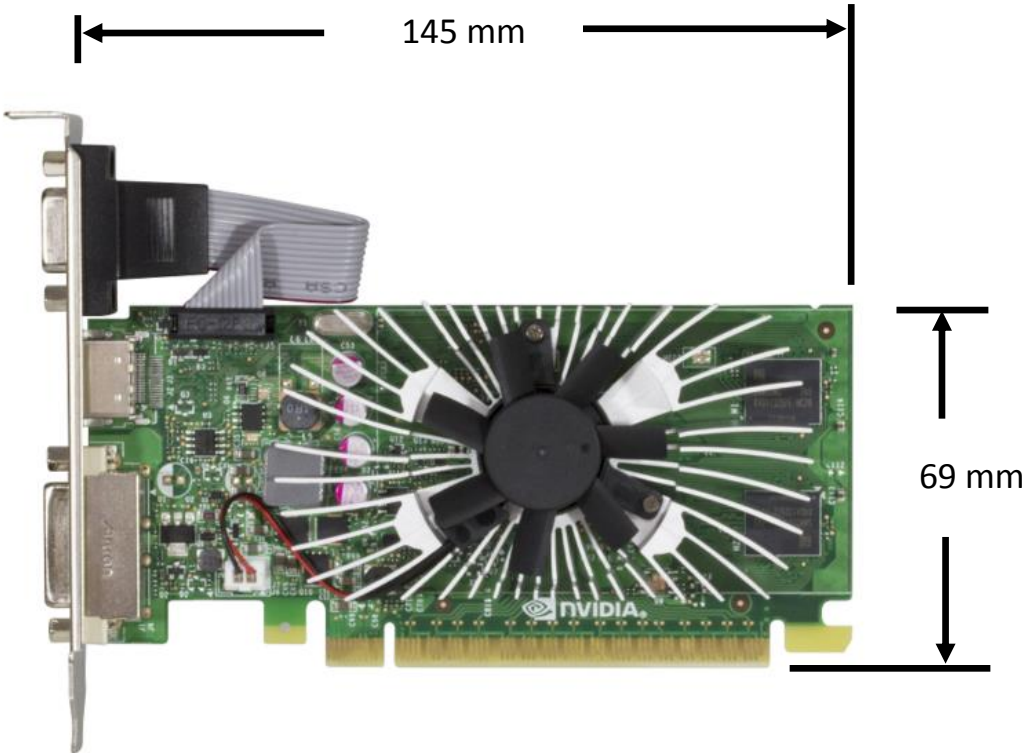
# 6. Output configuration and Board Dimension

## 6.1. Output Configuration



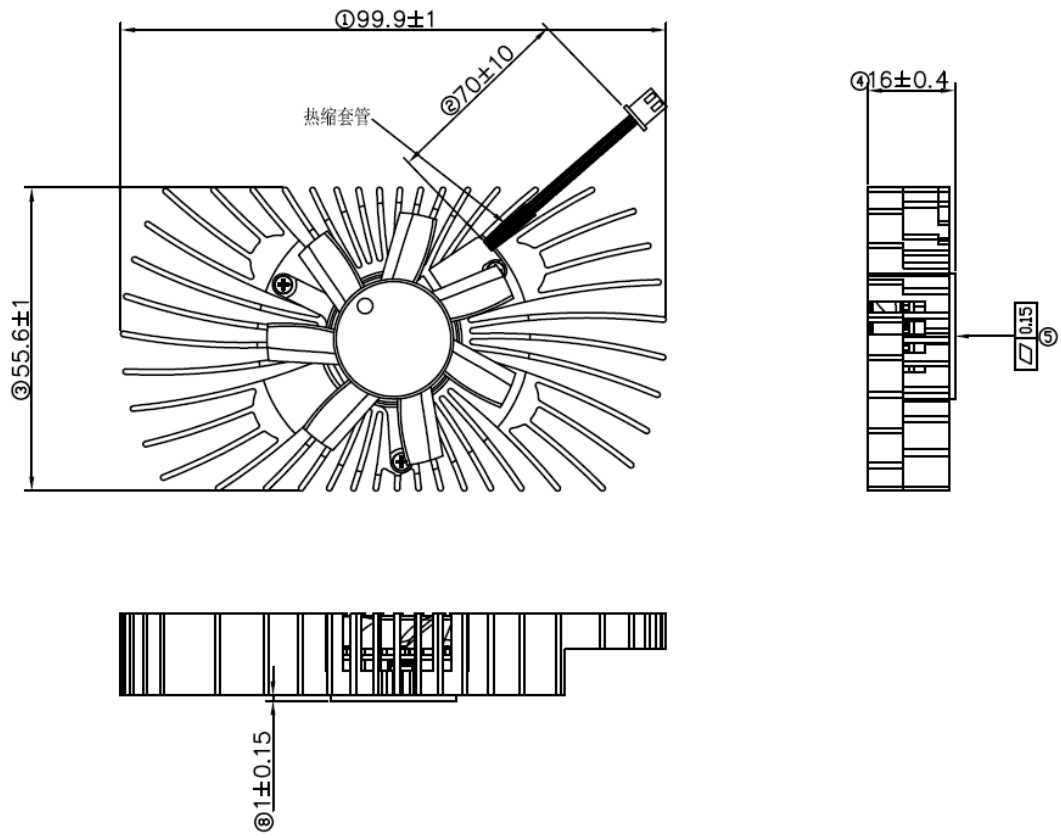
## 6.2. Board Dimension

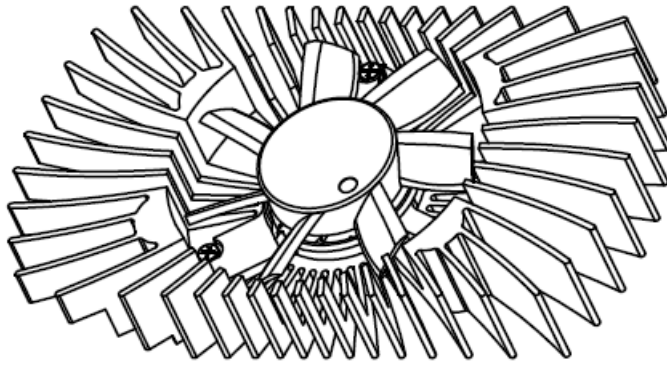
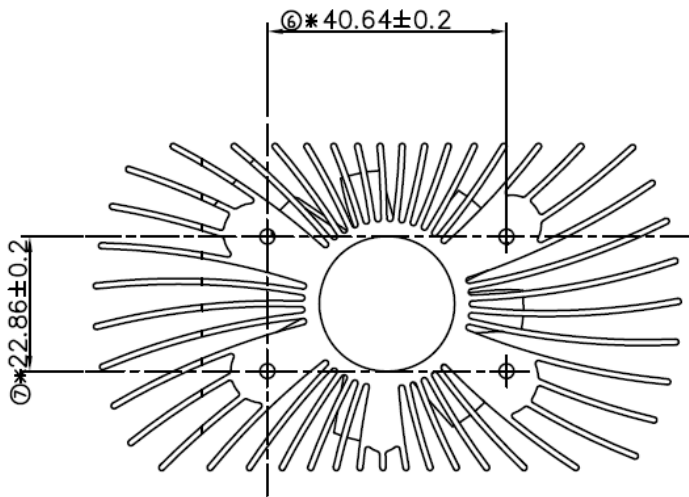
(Unit : mm)





## 7. Thermal Mechanism





## Change log or update history

Rev.	Data	History
1.0	2018/04/13	7302048Q5S64LAU datasheet