SPARKLE

NVIDIA RTX 3050 6GB GDDR5 PCIe® ADD-IN BOARD

Datasheet

Model number：3050D6144D696LY

SPARKLE P/N：2A1-E000132ADP

ADVANTECH P/N：96VG-N3050LX8-6T

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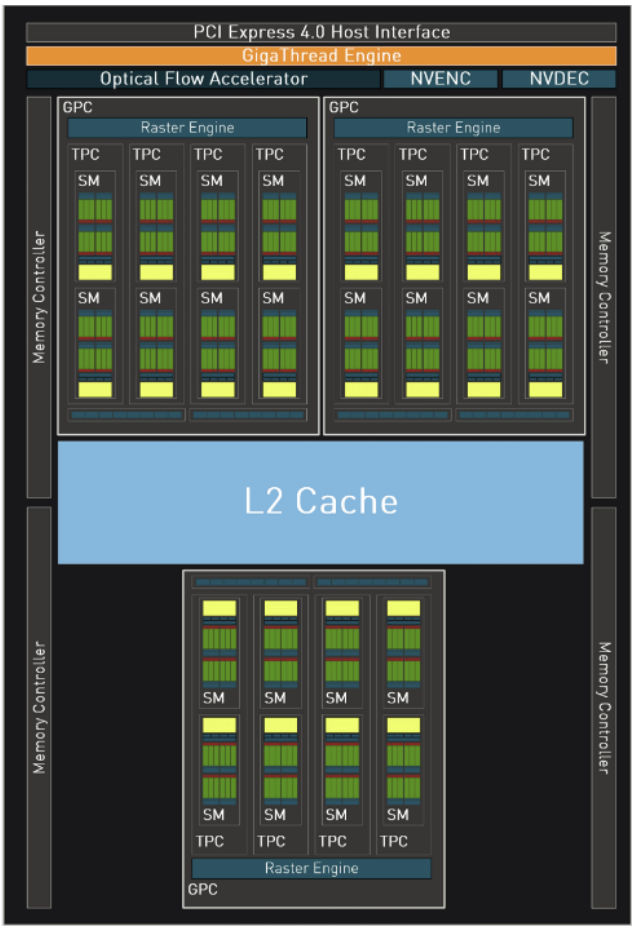
1. Feature

Part No.	*3050D6144D696LY*
Graphics Processing Unit	
GPU	NVIDIA® GeForce RTX™ 3050 (GA107)
Process Technology	8 nm
Base clock	1042 MHz
Boost clock	1470MHz
Form Factor	Dual slot Low Profile
Card Interface	PCI Express® 4.0 (X8)
CUDA Cores	2304
Floating Point Performance (FP32)	6.77 TFLOPs
DirectX® capability	DirectX® 12 (Feature Level 12_2)
OpenGL	OpenGL™ 4.6
Video Decoder	NVDEC support
Memory	
Memory Clock	1750 MHz / 14.0 Gbps
DDR Type	GDDR6
Memory Bus	96-bits
Memory Size	6144MB
Display Interface	
Display Output	Mini DisplayPort x 4
Multi-Display	4
Board spec.	
External Power	No
Power Consumption	70W
Operationg Temperature	0˚C~45˚C
Dimensions	165mm (L) x 75mm (H)

2. Functional Overview

2.1. GPU Block diagram



2.2. Memory Interface

Memory configuration support:

The 3050D6144D696LY supports industry standard GDDR6 technology memory interface. The Frame Buffer DRAM interface of GA107 is 96-bit. All DRAM devices must be the same type, and the same size on each channel, and must run at the same voltage.

GDDR6 Memory Configuration :

- GDDR6 Configuration: 512Mx32
- The GA107 GPU supports a frame buffer interface up to 96 bits.

2.3. Features and Technologies

- Direct X 12 with Feature Level 12_2
- OpenGL 4.6
- NVIDIA CUDA technology
- NVIDIA G-SYNC-ready
- Vulkan API
- NVIDIA GPU Boost

2.4. Display

- Support multi monitor at 4
- Support maximum resolution at 4096x2160 (4K)@60Hz on DisplayPort
- HDCP: Provides digital content protection on any Digital display
- HDCP 2.3 support on DisplayPort

2.5. Digital Audio

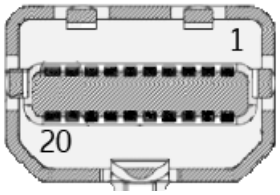
- Supports for HD Audio over PCI Express
- Multi-channel (7.1) LPCM
- Data rates up to 192KHz
- Word sizes of 16-bit, 20-bit, and 24-bit

2.6. Video

- Decode video on GPU using NVDEC Decoding.

3. Output PIN Assignment and Description

3.1. Mini DisplayPort Connector



Pin Number	Pin Name	Description
1	GND	Ground
2	HPD	Hot plug detect
3	ML_Lane 0 +	Lane 0 (positive)
4	CONFIG1	
5	ML_Lane 0 -	Lane 0 (negative)
6	CONFIG2	
7,8	GND	Ground
9	ML_Lane 1 +	Lane 1 (positive)
10	ML_Lane 3 +	Lane 3 (positive)
11	ML_Lane 1 -	Lane 1 (negative)
12	ML_Lane 3 -	Lane 3 (negative)
13,14	GND	Ground
15	ML_Lane 2 +	Lane 2 (positive)
16	AUX_CH +	Auxiliary Channel (positive)
17	ML_Lane 2 -	Lane 2 (negative)
18	AUX_CH -	Auxiliary Channel (negative)
19	GND	Ground
20	DPPWR	Power for connector

4. Power Specifications

Parameter	Value	Unit
Input Board Power (Estimated)		
PCI Express edge connector (12V)	5.07	A
	58.86	W
PCI Express edge connector (3V3)	1.29	A
	4.13	W
Auxiliary 6-pin power connector(12V)	N/A	A
	N/A	W
Total input graphics power (TGP)	62.99	W

5. Thermal Specifications

Parameter	Value	Unit
Fan inlet temperature (max.)	50	˚C
GPU slowdown temperature (max.Tj)	86	˚C
GPU shutdown temperature	99	˚C

6. Output configuration and Board Dimension

6.1. Output Configuration

6.2. Board Dimension

(Unit : mm)

Revision History

Rev.	Data	History
1.0	2024/04/22	3050D6144D696LY datasheet release