msi

Built To Be Perfect

N275GTX Lightning

Presented by **MSI DPS Marketing**

Previously on Lightning Series

MSI built the fastest GeForce GTX 260 on the planet!

"It can turn the everyman into an overclocking champion"

-- Tom's Hardware

"MSI touts this card as an overclocker's dream"

-- HardwareZone

"What MSI is showing here has to be one of the most unique products I have seen in a long time"

-- Guru3D

"The card easily overclocked to the highest level I've ever seen on a GeForce GTX260 216 core card "

-- Motherboard.org

"you can call it the fastest GeForce GTX 260 is available in the market. "

-- nVIsion

N275GTX Lightning

Now the fastest gets even FASTER!

MSI completely redesign this new ultimate jet fighter with all the latest technology -- best components, best thermal design, best hardware layout, best overclocking utility, and biggest memory. There is only one goal – ***to break the world record we created before!***

Key Features of N275GTX Lightning

Top Quality

Military Class
Redesigned 10 Phase PWM
APS
Black PCB

Ultra High Performance

Double Size Memory
Extreme Pre-overclocked

Overclocking Features

Lightning Afterburner
V-Check Point

Best Cooling

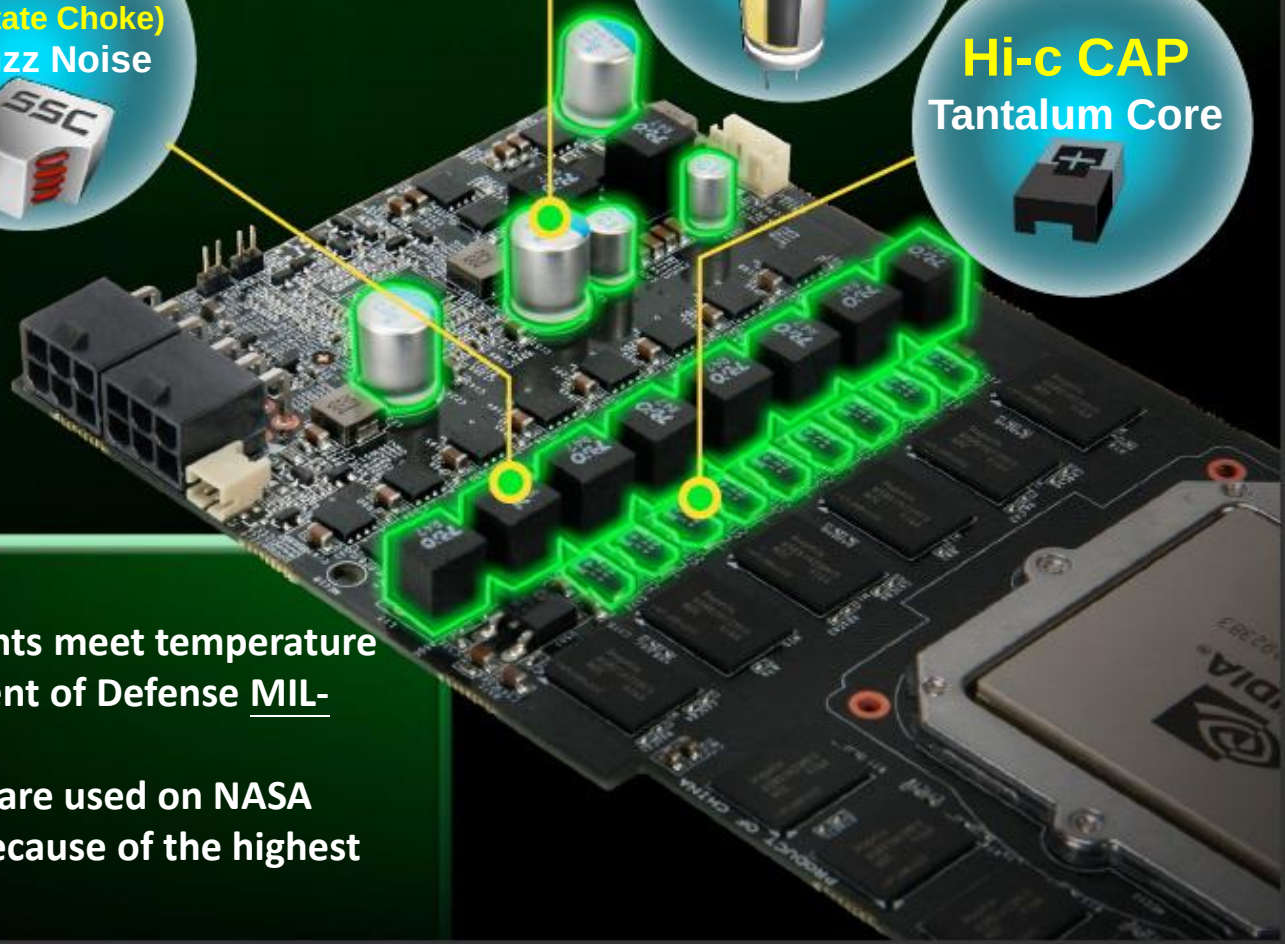
Twin Frozr II
SuperPipe

Military Class Components

SSC
(Solid State Choke)
No Buzz Noise

All Solid CAP
10 Years Lifetime

Hi-c CAP
Tantalum Core



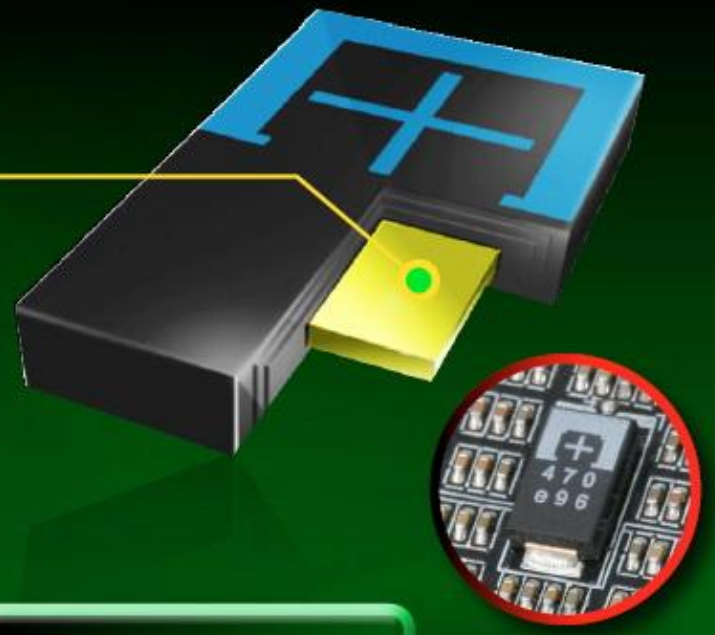
- Top Quality Components
- All Military Class components meet temperature requirement of US Department of Defense MIL-PRF-39003L standard
- Same class of components are used on NASA satellites or space shuttles because of the highest quality

Hi-c CAP

Hi-c CAP(Highly-Conductive Capacitor)

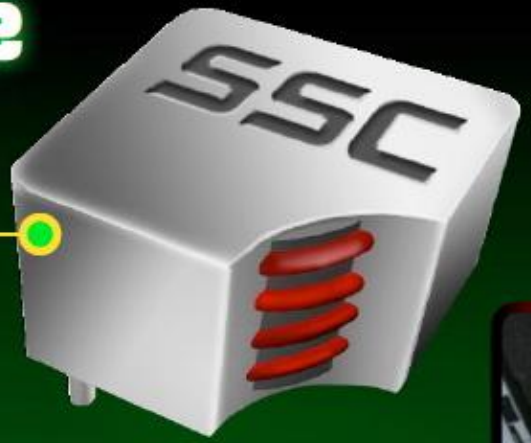
Tantalum Core

- Rare metal, incredibly stable
- Extremely high conductivity
- Stabilize GPU power, better overclocking
- Used on space shuttles and satellites



Solid State Choke

SSC (Solid State Choke)

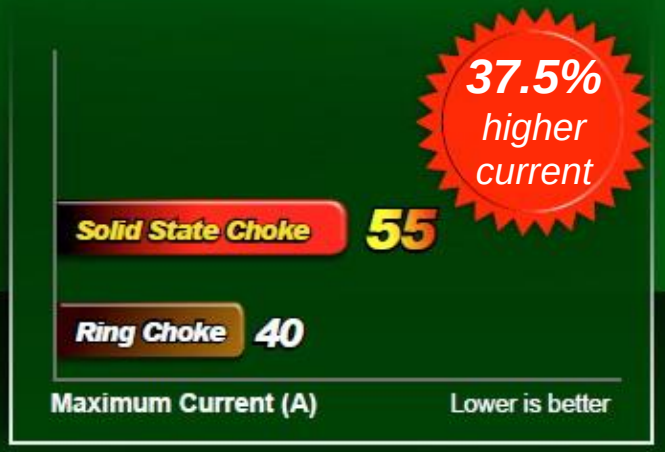


Pure Iron Core

- New generation, form-in-one choke
- No buzz noise
- Higher maximum current output
- Better protection of power surge
- Designed for overclocking

NO Buzz!!

- No separate parts in the SSC
- Coil is completely buried inside the SSC
- No vibration buzz noise under heavy loading



All Solid CAP

Solid Capacitor

Aluminum Core

- 10 years ultra long lifetime
- No explosion
- Extreme low ESR
- Lower temperature
- Higher efficiency

10 years
lifetime under full load

ESR (Equivalent series resistance)
- Internal resistance of components
- Lower ESR = Lower temperature
- Lower ESR = Higher efficiency

2x
Lower ESR

Redesigned 10 Phase PWM

NEW

Incomparable Power Design

- GPU consumes more power than hi-end CPU.
- 10 Phase PWM provides the best quality of power supply to GPU and memory.

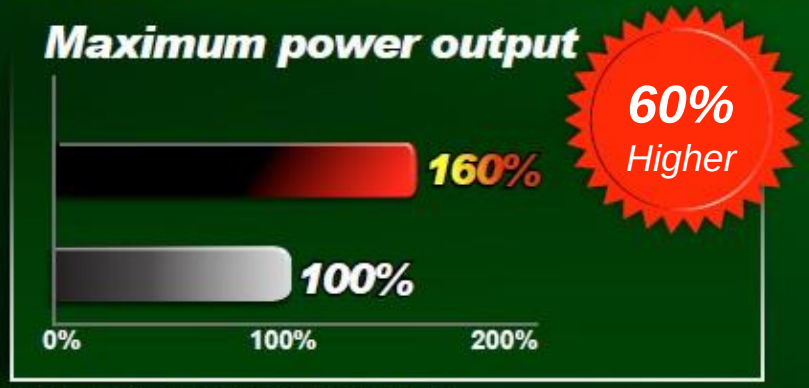
For Overclocking and Stability

- To break the impossible overclocking record needs unusual power supply.
- A must when extreme overclockers use liquid nitrogen.

Redesigned Layout

- GPU draw power completely from stable external power
- More stable and higher power supply
- Increase extreme overclocking stability

Power Supply	N275GTX Lightning	N260GTX Lightning	GeForce GTX 275 Reference
External Power (6.25A max.)	GPU 8 phase	GPU 4 phase + Memory 2 Phase	GPU 4 phase
PCI-Express Power(5.5A max.)	Memory 2 Phase	GPU 4 Phase	Memory 2 phase



10 Phase PWM (N275GTX Lightning)
6 Phase PWM (GeForce GTX 275 Reference)

MSI Lightning Series are only graphics cards with 10 phase PWM

APS (Active Phase Switching)

- MSI exclusive power-saving technology for graphics card and motherboard
- Fully automatically adjust PWM phase based on GPU/Memory loading
- Work on any OS (Windows, Linux…)
- Maintain over 90% efficiency under all loading, up to 93%
- Save 66576W* per year

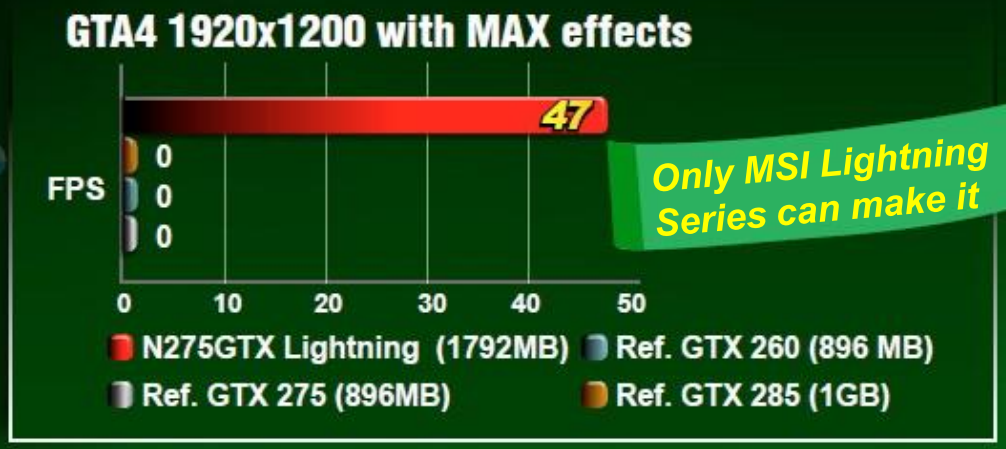
Up to **93%** efficiency

NEW

*Formula: 7.6W/H x 24H x 365D = 66576W

Double Size Memory

- Better performance for next-gen DX10 games with large texture size (such as Grand Theft Auto 4



N260GTX/N275GTX Lightning with 1792MB

Reference GeForce GTX 260/275 With 896MB memory

Sorry it's not playable due to limited memory size.

Image Quality Comparison

Win MAX effects (N275GTX Lightning)

LOW effects (Reference GeForce GTX 260/275)

Win

Win

Highly detailed quality

Blur and low quality

Lightning Afterburner

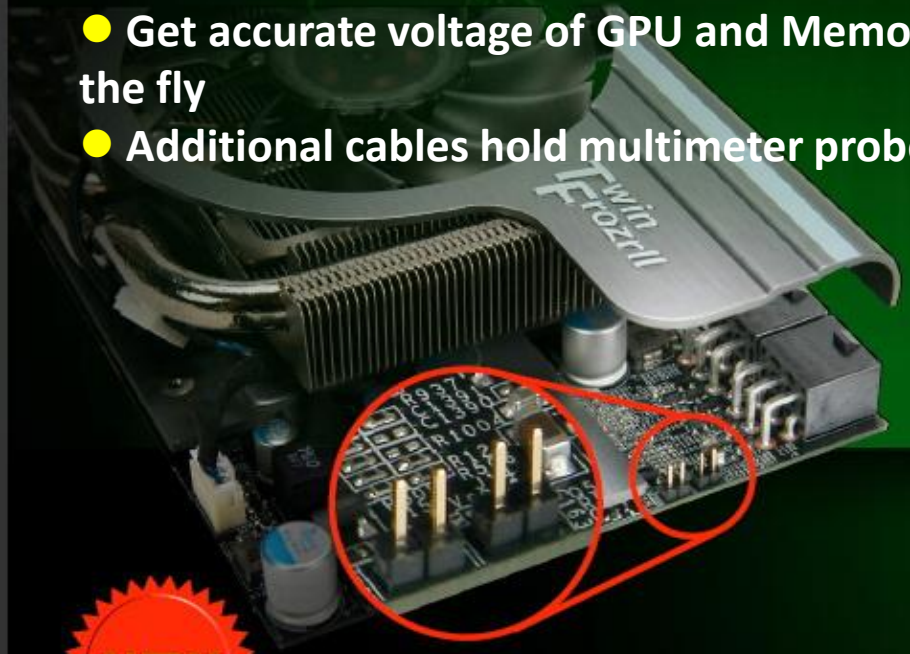
- Dedicated utility for N275/N260GTX Lightning
- Adjust GPU Voltage, GPU/Memory Clock, Fan Speed
- Show Clock/Voltage/Fan Speed information in 3D Games
- Preset profiles (Game & Power Saving) for different scenarios
- Users can save their setting in 3 different profiles
- Hotkeys for in-game Clock/Fan speed control

Hotkey	Function
CTRL + ALT + Up Arrow	Increase GPU Clock
CTRL + ALT + Down Arrow	Decrease GPU Clock
CTRL + ALT + A	Set Auto Fan Speed
CTRL + ALT + F	Increase Fan Speed
CTRL + O	Toggle in-game OSD
CTRL + P	Toggle Lightning Afterburner

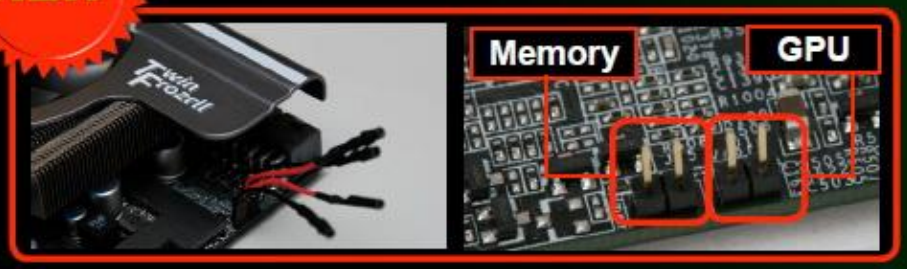
Show graphics card information in 3D games

V-Check Points

- Lightning series has built-in voltage measurement points
- Get accurate voltage of GPU and Memory on the fly
- Additional cables hold multimeter probes



NEW



PAST

In the past, overclockers spent a lot of time on finding the points to check real voltage. (trace circuit, try & error..)

NOW

Now use Multimeter to check the current GPU/Memory voltage on V-Check Points of N275GTX Lightning without difficulty!

Twin Frozr II with SuperPipe

Dual Fan Design

- Dual 8cm Ultra Quiet Fan
- Cool down GPU, memory and power module components

5 Heatpipe

- 2 SuperPipe, 8mm thickest heatpipe
- Transfer heat with highest efficiency

High-Density fins & big cooper base

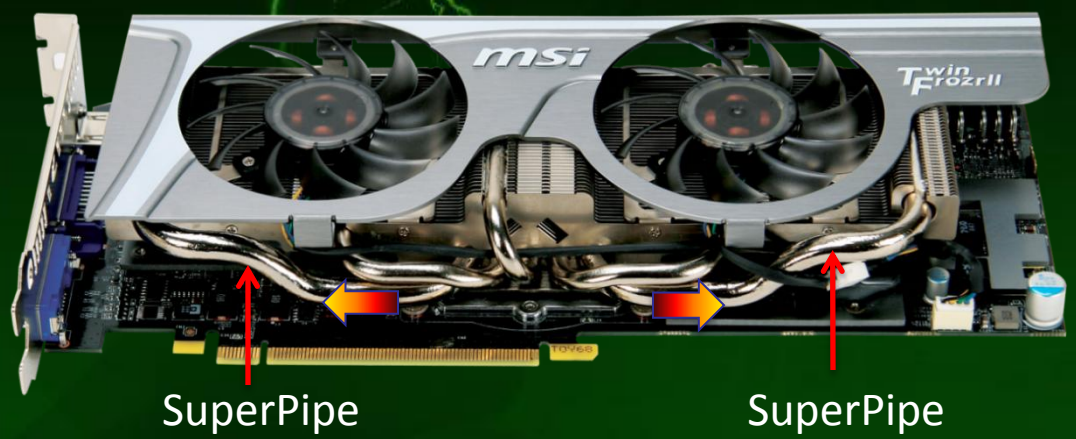
- Provide the biggest heat disspation area
- Big cooper base for large NVIDIA GT200 die

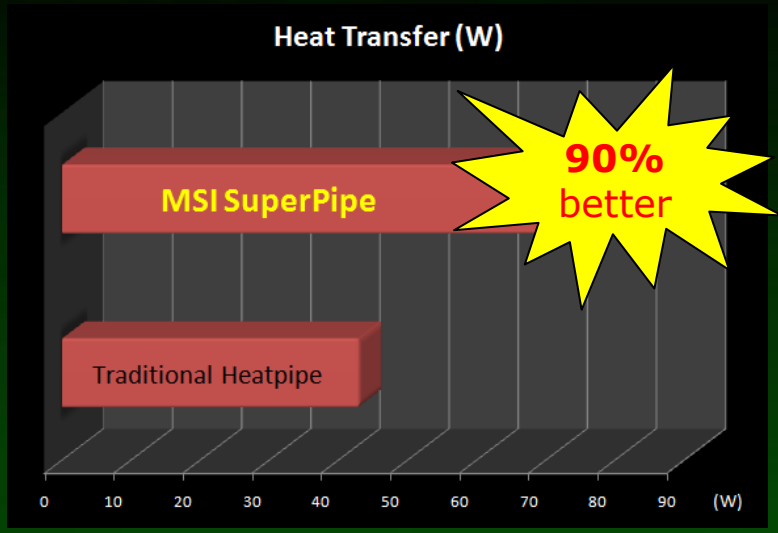
Memory/MOSFET heatsink

- Cool down NVIO, Memory and MOSFET
- Form-in-one design protect graphic card from bending

Only 30db(A) under full speed!

MSI SuperPipe Technology

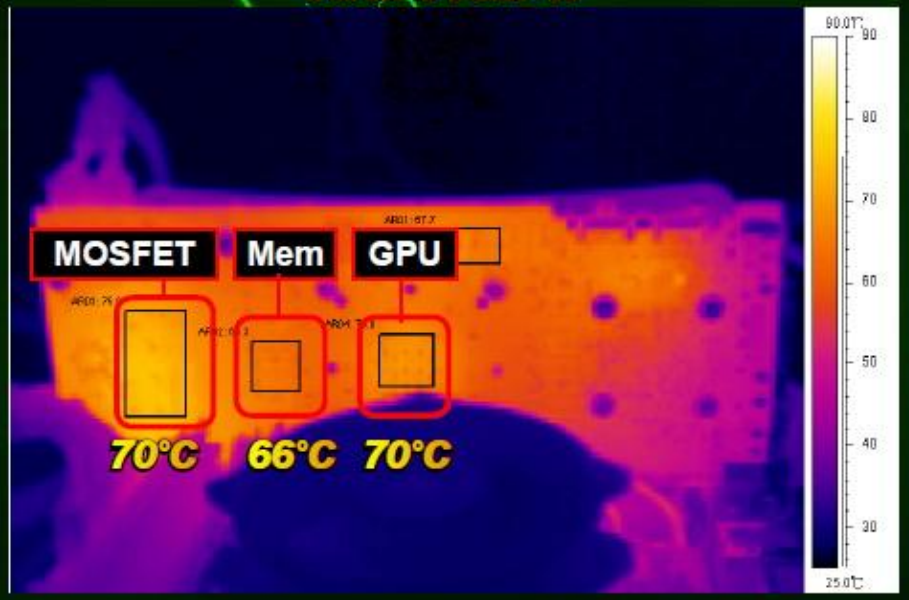




- **8mm** extra thick heatpipe
- **Thickest heatpipe** used on graphics card
- **60%** thicker than traditional heatpipe

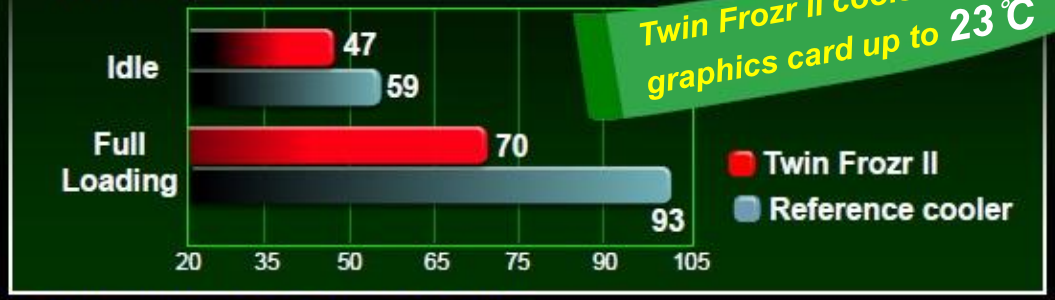
Twin Frozr II Thermal Test

Twin Frozr II



NVIDIA Reference Cooler

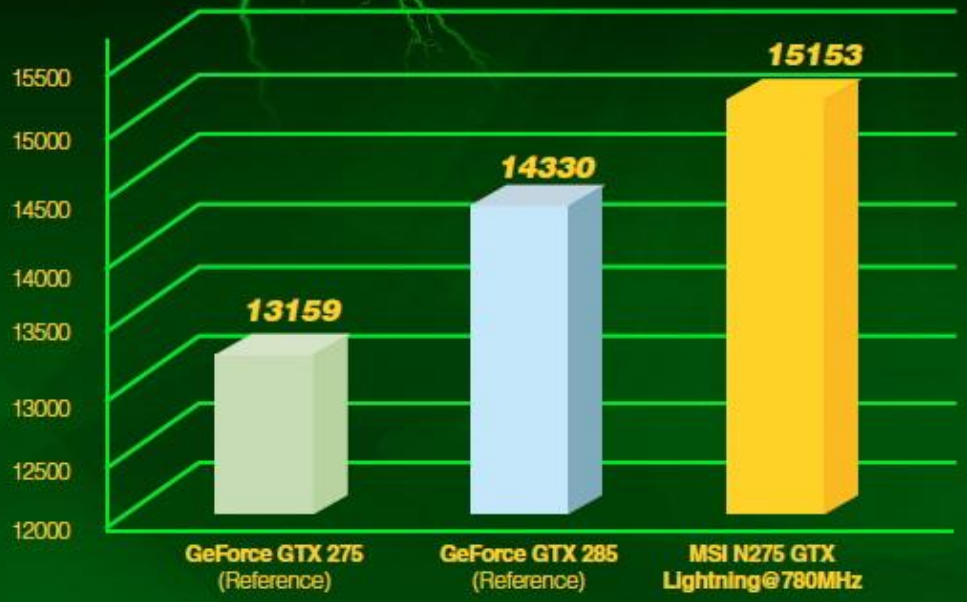
Thermal Test



Twin Frozr II cools down graphics card up to 23℃

** Room temperature : 25 °C Lower is better (°C)

Overclocking Performance



N275GTX Lightning beats GeForce GTX 285 with stock cooler!

Overclock to 780MHz by using Lightning Afterburner with ease

Product	GeForce GTX 275	GeForce GTX 285	N275GTX Lightning
GPU Clock	633 MHz	648 MHz	780 MHz*
Memory Clock	2322 MHz	2484 MHz	2300 MHz
Memory Size	896 MB	1024 MB	1792 MB

Test Criteria - CPU: i7 920; System memory: DDR1600 1G * 3; PhysX: On; Driver: 182.06 WHQL; OS: Vista SP1x86
780MHz is overclocking result by using Lightning Afterburner

Competitors Comparison

Item	MSI N275GTX Lightning	Other brand GeForce GTX 275
		
Core Clock	700 MHz	633 MHz
Memory Size	1792MB	896MB / 1792MB
Hi-c CAP	YES	NO
SSC (Solid State Choke)	YES	NO
PWM Phase	10	6
APS (Active Phase Switching)	YES	NO
PCB Layers	10	8
Numbers of Fan	2	1
Numbers of Heatpipes	5	3
8mm SuperPipe	YES	NO
Voltage Measurement	YES	NO
Overvoltage function	YES	NO
HDMI Output	YES	NO

Product Spec

	N275GTX Lightning	N260GTX Lightning
Photo		
GPU	NVIDIA GeForce GTX 275	NVIDIA GeForce GTX 260
Codename	GT200	GT200
Stream Processor	240	216
Core Clock	700 MHz	680 MHz
Stream Processor Clock	1404 MHz	1458 MHz
Memory Clock	2300 MHz	2100 MHz
Memory Size	1792MB GDDR3	1792MB GDDR3
Memory Bus	448 bits	448 bits
DirectX Version	DirectX 10	DirectX 10
OpenGL Version	OpenGL 2.1	OpenGL 2.1
Output	HDMI, DVI, D-Sub	HDMI, DVI, D-Sub
Dimension(L*W*H)	28*12*4 cm	28*12*4 cm

Conclusion

N275GTX Lightning is culmination of everything!

- **Military Class**: Hi-c CAP/SSC/All Solid CAP, highest quality components
- **10 Phase PWM**: The most stable power supply for extreme overclocking
- **APS**: Dynamic phase adjustment for power saving with 93% efficiency
- **1792MB Memory**: The best performance for next generation large texture games
- **Lightning Afterburner**: Dedicated over-voltage and overclocking utility for Lightning Series
- **V-Check Points:** Built-in pin for voltage measurement of GPU and Memory
- **Twin Frozr II**: New Dual Fan design with bigger fan size and larger heatsink for the best cooling efficiency
- **SuperPipe**: 8mm thickest heatpipe for maxmium heat dissipation efficiency