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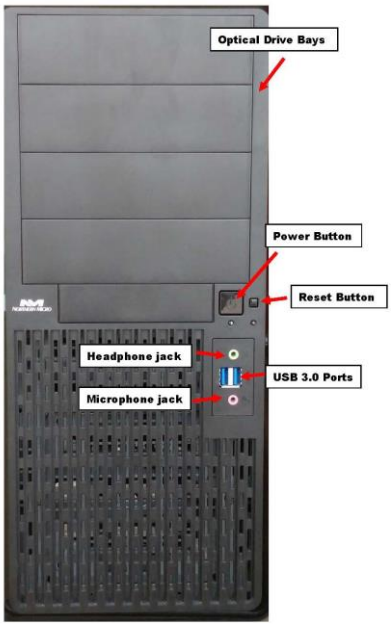
Northern Micro Spirit X299-AS

Chassis – In Win PE689T2

Dimensions (D x W x H):	465 x 200 x 430 mm (18.3" x 7.9" x 16.9")
Drive Bays:	External 5.25” x4, External 3.5” x1, Internal 3.5” / 2.5” x5
Indicators:	Power Status, HDD Activity
Front Buttons:	Power On / Off, System Reset, USB 3.0 x2, Headphone Jack, MIC Phone Jack
System Security:	Padlock Loop, Kensington Slot Lock
Expansion Slots:	7
Metal Thickness:	1.0mm



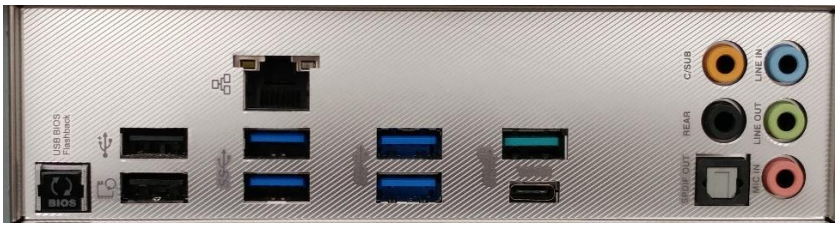
Power Supply – Corsair HX1000i

Total Continuous Power:	1000W
Certification:	80Plus Platinum Certification
Connectors:	PCIE x8, SATA x12, Floppy x2, EPS x2

Motherboard – Asus Prime X299-A

CPU Compatibility:	Intel® Socket 2066 Core™ X-Series Processors
Chipset:	Intel® X299
Memory:	8 x DIMM, Max. 128GB, DDR4 4000(O.C.)/3600(O.C.)/2666/2400/2133 MHz Non-ECC, Un-buffered Memory
Graphic:	Supports NVIDIA® Quad-GPU SLI™ Technology Supports NVIDIA® 3-Way SLI™ Technology Supports NVIDIA® 2-Way SLI™ Technology Supports AMD Quad-GPU CrossFireX™ Technology Supports AMD 3-Way CrossFireX™ Technology
Expansion Slots:	3 x PCIe 3.0/2.0 x16 (x16, x16/x16, x16/x16/x8) 2 x PCIe 3.0 x4 (max at x4 mode) 1 x PCIe 3.0/2.0 x1
Storage:	1 x M.2 x4 Socket 3, with M key, type 2242/2260/2280 storage devices support (SATA & PCIE 3.0 x 4 mode) 1 x M.2 x4 Socket 3, with M key, type 2242/2260/2280/22110 storage devices support (PCIE 3.0 x 4 mode) 8 x SATA 6Gb/s port(s) Support Raid 0, 1, 5, 10 Supports Intel® Smart Response Technology, Intel Rapid Start Technology Intel® Optane™ Memory Ready
LAN:	Intel® I219V, 1 x Gigabit LAN Controller
Audio:	Realtek® S1220A 8-Channel High Definition Audio CODEC - Supports: Jack-detection, Front Panel Jack-retasking
USB Ports:	**Intel® X299 Chipset:** 8 x USB 3.1 Gen 1 port(s) (4 at back panel, 4 at mid-board) **Intel® X299 Chipset:** 4 x USB 2.0 port(s) (4 at back panel, , 2 at mid-board)

Back I/O Ports:	1 x LAN (RJ45) port(s) 2 x USB 3.1 Gen 2 Type-A + USB Type-CTM, 4 x USB 3.1 Gen 1 , 2 x USB 2.0 (one port can be switched to USB BIOS Flashback) 1 x Optical S/PDIF out 5 x Audio jack(s) 1 x USB BIOS Flashback Button(s)
Internal I/O Ports	1 x AAFP connector 2 x Aura RGB Strip Header 2 x USB 3.1 Gen 1(up to 5Gbps) connector(s) support(s) additional 4 USB 3.1 Gen 1 port(s) 1 x USB 2.0 connector(s) support(s) additional 2 USB 2.0 port(s) 1 x M.2 Socket 3 with M key, type 2242/2260/2280 storage devices support (SATA & PCIE 3.0 x 4 mode) 1 x M.2 Socket 3 with M key, type 2242/2260/2280/22110 storage devices support (PCIE 3.0 x 4 mode) 8 x SATA 6Gb/s connector(s) 1 x M.2_FAN connector 1 x VROC_HW_Key 1 x CPU Fan connector(s) 1 x CPU OPT Fan connector(s) 2 x Chassis Fan connector(s) 1 x AIO_PUMP connector 1 x W_PUMP+ connector 1 x Thunderbolt header(s) 1 x 24-pin EATX Power connector(s) 1 x 8-pin ATX 12V Power connector(s) 1 x 4-pin ATX 12V Power connector(s) 1 x System panel(s) (Q-Connector) 1 x 5-pin EXT_FAN(Extension Fan) connector 1 x MemOK! button(s) 1 x Thermal sensor connector(s) 1 x Power-on button(s) 1 x Clear CMOS jumper(s) 1 x USB 3.1 Gen 2 front panel connector 1 x CPU_OV jumper
Security:	TPM 2.0



Processor – Intel Core i7-7820X

Processor Number:	i7-7820x
Lithography:	14nm
# of Cores:	8
# of Threads:	12
Processor Base Frequency:	3.60 GHz
Max Turbo Frequency:	4.30GHz
Cache:	11MB L3
Bus Speed:	8GT/s DMI3
TDP:	140W
Max Memory Size:	128GB
Memory Types:	DDR4-2666
ECC Memory Supported:	No
Socket Supported:	FCLGA2066
Intel Optane Support:	Yes
Intel Turbo Boost Technology:	2.0
Intel vPro Platform:	Yes
Intel Hyper-Threading:	Yes
Intel VT-x:	Yes
Intel VT-d:	Yes
Cooling:	Liquid Cooling Solution

Memory – Crucial 8GB DDR4 – 2666

Total Capacity:	32GB (8GB x 4)
Speed:	2666 MT/s

Spec:	DDR4 PC4-21300, CL-19, Single Ranked, x8 Based, Unbuffered, Non-ECC, 1.2V, 1024Meg x 64

Storage – Intel 512GB SSD M.2 760P Series

Capacity:	512GB
Form Factor:	M.2 2280
Interface:	PCIe NVMe 3.1 x4
Hardware Encryption:	AES 256 bit

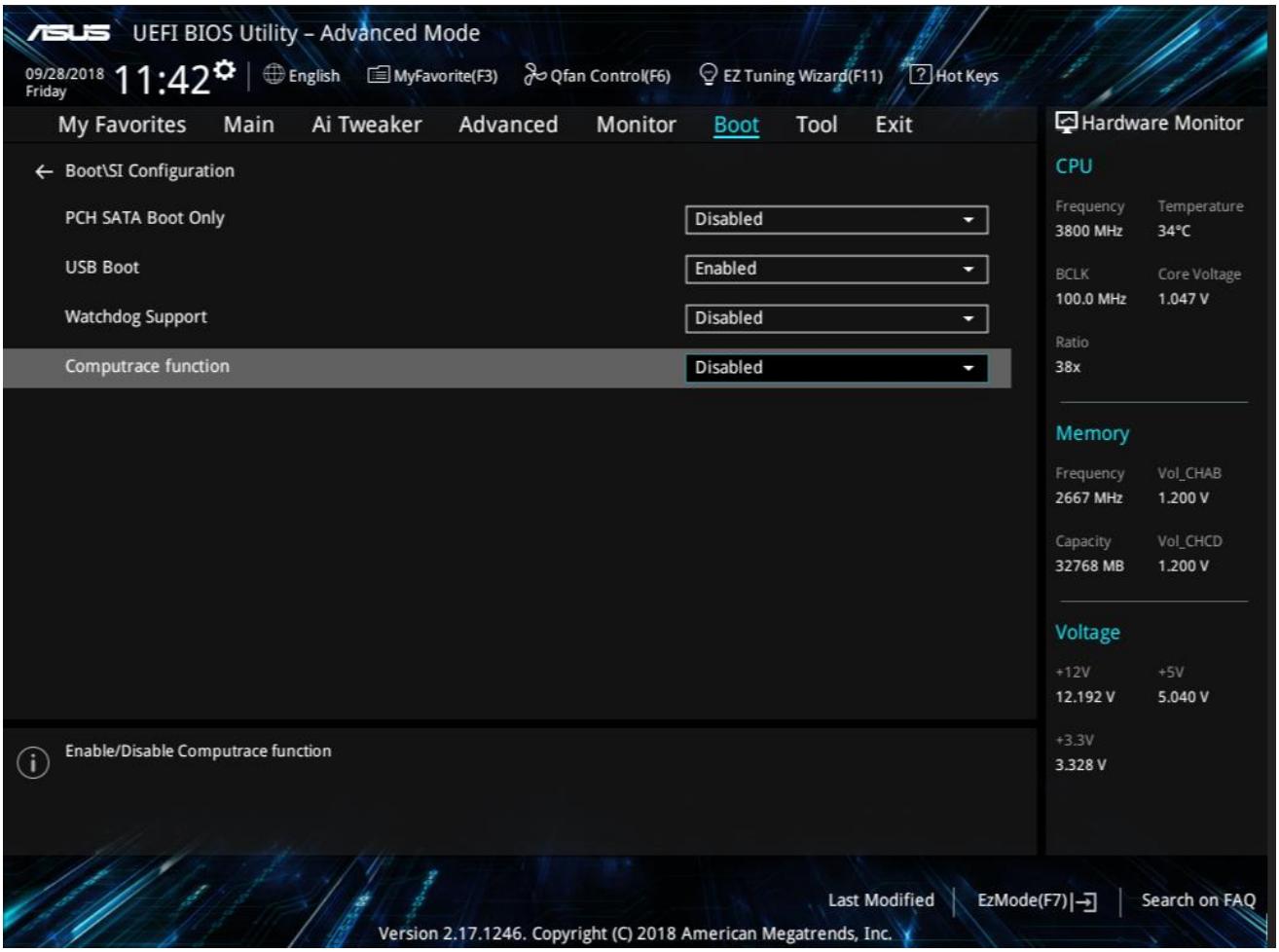
Video – MSI GeForce GTX 1080

Interface:	PCI Express x16 3.0
Memory Type:	GDDR5X
Memory Size:	8192MB
Core Clock Speed:	1733MHz / 1607MHz
Memory Clock Speed:	10010MHz
Maximum Displays:	4
Multi-GPU Technology:	SLI, 2-way
Output:	DisplayPort x3 (1.4), HDMI, DVI-D
Maximum Resolution:	7680 x 4320
DirectX Version Support:	12.0
OpenGL Version Support:	4.5

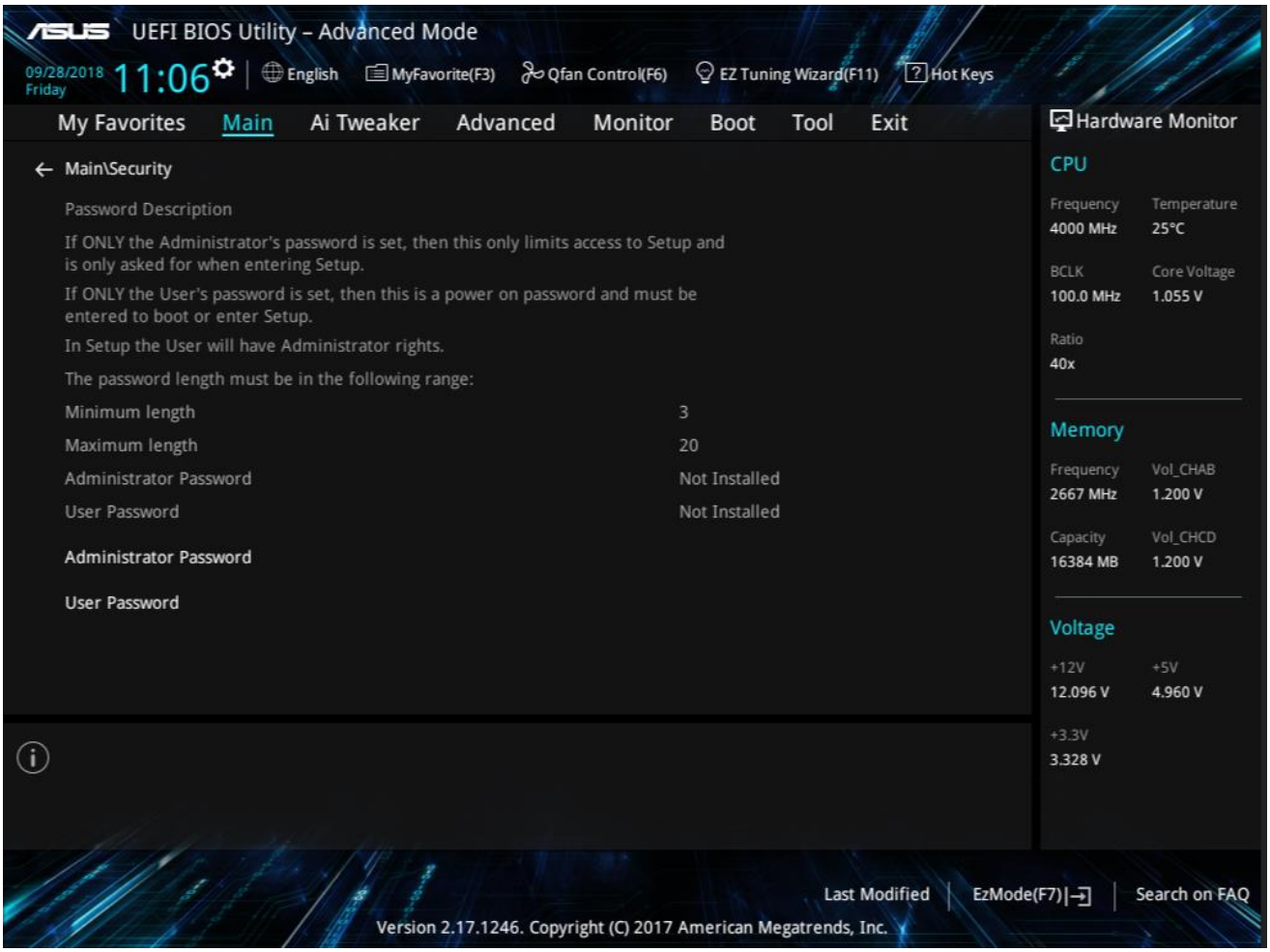
Operating System

Installed OS:	Windows 10 Professional, 64 bit

Computrace Ready



BIOS Security



OPTION ITEMS

Communications

Wireless & Bluetooth Adapter:	N4G85AA (Intel 7265)
Wireless Protocol:	802.11 a/g, 802.11n, 802.11ac
Wi-FI Supported Frequency:	2.4G & 5G
Bluetooth:	4.2
Adapter Socket:	PCE-E x1

Keyboard – Bilingual

Part Number:	KBS225FE-USB-BL
Manufacturer:	Solidus
Keyboard Layout:	QWERTY - 105 Keys, English and French Function keys
Connectivity:	USB

Keyboard – TBITS 5

Part Number:	KBS225T5-USB-BL
Manufacturer:	Solidus
Keyboard Layout:	QWERTY - Symbol Function keys
Connectivity:	USB

Keyboard - English

Part Number:	ANB-00002
Manufacturer:	Microsoft
Keyboard Layout:	QWERTY - English Function keys
Connectivity:	USB

Mouse – Basic Scroll Mouse

Part Number:	4YH-00005

Manufacturer:	Microsoft
Connectivity:	USB
Buttons:	2-Buttons, 1-Scroll Wheel & Button
Technology:	Optical

Northern Micro ISO 9001-2015 Certification

The Registrar Company

CERTIFICATE OF REGISTRATION

This is to certify that the Quality Management System of

Northern Micro Inc.

3155 Swansea Crescent
Ottawa, Ontario K1G 3J3
CANADA

has been assessed by TRC, Inc. and found to be in conformance to the following standard(s):

ISO 9001:2015

This Registration is for the following scope:

Northern Micro is a consulting manufacturer and integrator of high-performance, value-oriented personal computers, servers and peripherals.

Original Issue Date: October 8, 2013

Current Term Issue Date: December 4, 2017

Expiry Date: December 6, 2020

President, The Registrar Company, Inc.

Certificate Number: TRC 00759

1400 Preston Road, Suite 400, Plano, TX 75093 USA
335 Laird Road, Unit 9, Guelph, ON N1G 4P7 CANADA

Northern Micro ISO 14001:2015 Certification

TRC
The Registrar Company

CERTIFICATE OF REGISTRATION

This is to certify that the Environmental Management System of

Northern Micro Inc.

3155 Swansea Crescent
Ottawa, Ontario K1G 3J3
CANADA

has been assessed by TRC, Inc. and found to be in conformance to the following standard(s):

ISO 14001:2015

This Registration is for the following scope:

Northern Micro is a consulting manufacturer and integrator of high-performance, value-oriented personal computers, servers and peripherals.

Original Issue Date: October 8, 2013

Current Term Issue Date: December 4, 2015

Date of Revision: December 2, 2016

Expiry Date: December 20, 2018

President, The Registrar Company, Inc.

Certificate Number: TRC 00760

1400 Preston Road, Suite 400, Plano, TX 75093 USA
335 Laird Road, Unit 9, Guelph, ON N1G 4P7 CANADA

Asus NIST SP800-147 Compliancy

ASUSTek COMPUTER INC.
No.15, Li-De Road, Beitou District,
Taipei City 112, Taiwan (R.O.C.)
TEL. 886-2-2894-3447
http://asus.com.tw

September 19, 2018

Attn:
Northern Micro
3155 Swansea Cres.
Ottawa, ON K1G 3J3

Re: **NIST SP 800-147 Compliance Declaration**

Dear Customer,

We acknowledge the motherboard products specifically listed below (**"Products"**) are provided by us, however the BIOS in the Products are provided by American Megatrends, Inc. (**"AMI"**). It is our policy to strictly follow and obey all applicable laws and regulations regarding the Products in order to maintain our reputation and goodwill. Furthermore, we have required our manufacturers and vendors as well to perform the compliance obligations with the same degree of care. We hereby declare that AMI has certified with written records that the BIOS in the Products are fully complied with the standards under **NIST SP 800-147** stipulated by the government of Canada.

Products:

Model	ASUS 90 Part Number
PRIME Q370M-C	90MB0W70*
PRIME Q270M-C	90MB0SZ0*
PRIME X299-A	90MB0U40*
PRIME X399-A	90MB0V80*

ASUS Confidential

Your faithfully,

ASUSTek Computer Inc.
Motherboard Business Unit
Office:+886-2-2894-3447
15, Li-Te Rd., Peitou, Taipei 112, Taiwan

Copyright 2017 ASUSTeK Computer Inc.

Northern Micro Spirit X299-AS Electrical Certification

QPS Evaluation Services Inc

Testing, Certification and Field Evaluation Body
Accredited in Canada, the USA, and Internationally

File
LR1005

CERTIFICATE OF COMPLIANCE

(ISO TYPE 3 CERTIFICATION SYSTEM)

Issued to	Northern Micro Inc.
Address	3155 Swansea Cr. Ottawa, ON K1G 3J3 Canada
Project Number	LR1005-22
Product	Desktop Computer
Model Number	Spirit X299-AS Spirit X299-AS(500)
Ratings	120V-240V, 60Hz, 8A, Class I, cord connected 120V-240V, 60Hz, 4A, Class I, cord connected
Applicable Standards	CAN/CSA-C22.2 No. 60950-1-07 – Information Technology Equipment-Safety-Part 1: General Requirements Second Edition; including AMD 1:2011 and AMD 2: 2014
Factory/Manufacturing Location	Same as applicant

Statement of Compliance: The product(s) identified in this Certificate and described in the Report covered under the above referenced project number have been investigated and found to be in compliance with the relevant requirements of the above referenced standard(s). As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.

CERTIFIED
ELECTRICAL SAFETY

Issued By: Andrew Saunders

Signature:

Date: March 16, 2018

81 Kelfield St., Units 7-9, Toronto, ON M9W 5A3 Tel: 416-241-8857; Fax: 416-241-0682
www.qps.ca

Northern Micro Spirit X299-AS ICES-003 Certification

VERIFICATION CERTIFICATE

NOT TRANSFERABLE

This Verification Certificate is hereby issued to the named GRANTEE and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below:

GRANTEE:	
Address:	Northern Micro Inc. 3155 Swansea Cres Ottawa, Ontario Canada, K1G 3J3
Contact Person:	Mr. David Voisey Email Address: d.voisey@nmicro.ca Telephone: (613) 226-1117 ext. 288 Fax: (613) 226-3810
Equipment Type:	Class A Information Technology Equipment (Including Digital Apparatus)
Product Name:	Spirit X299-AS
Model No.:	X299-AS
The above product was tested by UltraTech Engineering Labs Inc. and found to comply with:	ISED Canada ICES-003, Issue 6 - Information Technology Equipment (Including Digital Apparatus) — Limits and methods of measurement
Date of Authorization:	December 23, 2017

- **Note(s)**: *See attached report, UltraTech's File No.: 17NORM025_ICES-003A, dated* December 4, 2017 *for details and conditions of Verification Compliance.*

Approved by: Tri M. Luu BASc.
V.P. – Engineering

UltraTech

3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4
Tel.: (905) 829-1570 Fax.: (905) 829-8050
Website: www.ultratech-labs.com, Email: vic@ultratech-labs.com, Email: tri@ultratech-labs.com

91038 | 1309 | 46390-2049 | AT-1945 | SL2-IN-E-1119R | CA2049

Northern Micro System Serial Label

Northern Micro Spirit X299-AS WHQL Certification

Microsoft

Hardware certification report **Approved**

Private product ID:	**14005654300817533**
Shared product ID:	**1152921504607572146**
Submission ID:	**1152921504627799847**
Submission date:	**9/25/2018**
Completion date:	**9/25/2018**
Company:	**Northern Micro**
Product name:	**Northern Micro Spirit X299-AS**
Category:	**System**
Product type:	**Desktop**
Qualification level:	**Certified for Microsoft Windows 10 Client family version 1709, x64**
Marketing name:	**N/A**

Microsoft Certified

Micron Technology ISO 9001 Certification

CERTIFICATE

Certificate Number: 110006.00

The Quality System of:

Micron Technology, Inc.
8000 S. Federal Way
Boise, ID 83707-0006
USA

Including its implementation, meets the requirements of the standard:

ISO 9001:2008

Scope:
Micron's semiconductor business – including the marketing, development, manufacturing, electrical and environmental testing, and sale of memory component, module products and memory systems; the development and manufacture of board level products; the development and manufacture of photomasks that are used in manufacturing leading edge next generation semiconductors.

This Certificate is valid until:	September 15, 2018
This Certificate is valid as of:	April 14, 2016
Certified for the first time:	February 1, 1994

Dr. Cem O. Onus
Managing Director, Business Assurance
DEKRA Certification, Inc.

The method of operation for quality certification is defined in the DEKRA Master Services Agreement. Integral publication of this certificate is allowed.

DEKRA Certification, Inc.
1120 Welsh Road, Suite 210
North Wales, PA 19454
USA
Ph: (215)997-4519
Fax: (215)997-3810

Accredited By:
ANAB

Northern Micro Spirit X299-AS EPEAT Gold Certification

Northern Micro Spirit X299-AS

Product:	Northern Micro Spirit X299-AS
CAB:	Green Electronics Council CAB
Country:	Canada
Product Type:	Workstations
Manufacturer:	Northern Micro Inc.
URL:	
Rating:	epeat GOLD
Registration Date:	6/28/2018
Product Status:	Active
Exceptions:	
Manufacturer Part #:	X299-AS
UPC:	
EAN:	
Consumer or Institutional:	Not Indicated

Criteria Category Summary	Optional Points
4.1 Reduction/elimination of environmentally sensitive materials	5/5
4.2 Materials selection	0/3
4.3 Design for end of life	4/5
4.4 Product longevity/life cycle extension	2/2
4.5 Energy conservation	1/2
4.6 End of life management	1/1
4.7 Corporate performance	2/2
4.8 Packaging	4/4
Total Optional Points:	19/24

Northern Micro Spirit X299-AS Energy Star Certification

CERTIFICAT ◆ CERTIFICADO ◆ СЕРТИФИКАТ ◆ 認證證書 ◆ CERTIFICATE ◆ ZERTIFIKAT

CERTIFICATE

No. 7457

America

Holder of Certificate: **Northern Micro Inc.**
3155 Swansea Cres.
Ottawa Ontario, CN K1G 3J3

EPA ID Number: **41199**

Product: **Desktop Computer**

Model(s): **X299-AS**

Parameters:

Rated Voltage:	115VAC
Rated Frequency:	60Hz
Rated Power:	1000W
Brand Name:	Northern Micro

Tested According To: ENERGY STAR® Program Requirements for:
Computers
Version: 6.1

The product was voluntarily tested according to the relevant ENERGY STAR® specifications noted above. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 2 as defined in ISO/IEC 17067. Certification is based on the TÜV SÜD "Testing and Certification Regulations" and the US Environmental Protection Agency ENERGY STAR® program requirements.

Test report no.: Northern Micro Spirit X299-AS FMESCR113017-3

Date: December 7, 2017 (Stephen M. Browne)

NRG_F_10.08, Revision 0, Effective 2017-10-11

TÜV SÜD AMERICA INC ● 10 Centennial Drive ● Peabody MA 01960 USA ● www.TUVamerica.com TÜV®

Course # - NM101-X299

Northern Micro Spirit X299 Series

Course Outline

Setup

- Introduction
- Safety Precautions
- Electrostatic Discharge (ESD)
- Setup & Configuration
- Care & Maintenance

General Specifications

- Motherboard
- CPU
- Memory
- Rear Panel Connectors
- Audio Configuration
- Hard Drive (SATA, M.2, SSD)
- Optical Drive
- Power Supply
- Keyboard & Mouse
- Optional Features
- Internal & External Connections

Installation and Removal

- Accessing the inside components
- Removal and Replacement of components

BIOS

- Understanding the BIOS
- BIOS settings and Options

Troubleshooting

- Troubleshooting Tips and Tricks
- Approved Diagnostic Tools

Platform Security

- What is TPM
- Safety Precautions

Environmental

- Environmental policy
- Environmental initiatives

Contacts

- Support contact resources