

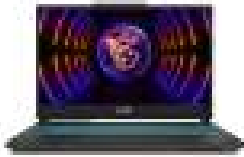


**MSI Cyborg 15 A12VE-299BE Intel® Core™ i7 i7-12650H Laptop
39,6 cm (15.6") Full HD 16 GB DDR5-SDRAM 512 GB SSD NVIDIA
GeForce RTX 4050 Wi-Fi 6 (802.11ax) Windows 11 Home Zwart**

Merk : MSI

Productfamilie: Cyborg

Artikelcode: CYBORG 15
A12VE-299BE



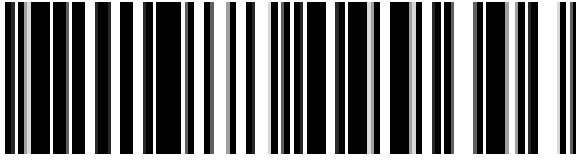
Productnaam : Cyborg 15
A12VE-299BE

- Windows 11 Home
- Intel Core i7-12650H (24MB Cache)
- 39.6 cm (15.6") Full HD 1920 x 1080, NVIDIA GeForce RTX 4050 (6GB GDDR6)
- 16GB (4800MHz) DDR4-SDRAM (2 x 8) & 512GB SSD
Intel Core i7-12650H (24MB Cache), 16GB DDR4-SDRAM, 512GB SSD, 39.6 cm (15.6") Full HD 1920 x 1080, Intel UHD Graphics, NVIDIA GeForce RTX 4050 (6GB GDDR6), LAN, WLAN, Webcam, Windows 11 Home
MSI Cyborg 15 A12VE-299BE. Producttype: Laptop, Form factor: Clamshell. Processorfamilie: Intel® Core™ i7, Processormodel: i7-12650H. Beeldschermdiagonaal: 39,6 cm (15.6"), HD type: Full HD, Resolutie: 1920 x 1080 Pixels. Intern geheugen: 16 GB, Intern geheugentype: DDR5-SDRAM. Totale opslagcapaciteit: 512 GB, Opslagmedia: SSD. On-board graphics adapter model: Intel® UHD Graphics, Discreet grafische adapter model: NVIDIA GeForce RTX 4050. Inclusief besturingssysteem: Windows 11 Home. Kleur van het product: Zwart



| Design | | Graphics | |
|--------------------------------------|--------------------------|---|---------------------|
| Colour name | Translucent Black | Graphics card Open GL support | ✓ |
| Product type * | Laptop | Audio | |
| Product colour * | Black | Audio system | Nahimic 3 |
| Form factor * | Clamshell | Number of built-in speakers | 2 |
| Market positioning | Gaming | Speakers manufacturer | Nahimic |
| Display | | Speaker power | 2 W |
| Display diagonal * | 39.6 cm (15.6") | Built-in microphone | ✓ |
| Display resolution * | 1920 x 1080 pixels | Camera | |
| Touchscreen * | ✗ | Front camera | ✓ |
| HD type | Full HD | Front camera HD type | HD |
| LED backlight | ✓ | Video capturing speed | 30 fps |
| Native aspect ratio | 16:9 | Network | |
| Display brightness | 250 cd/m² | Top Wi-Fi standard * | Wi-Fi 6 (802.11ax) |
| Maximum refresh rate | 144 Hz | Wi-Fi standards | Wi-Fi 6 (802.11ax) |
| Processor | | Mobile network connection * | ✗ |
| Processor manufacturer * | Intel | WLAN controller model | Intel Wi-Fi 6 AX201 |
| Processor family * | Intel® Core™ i7 | WLAN controller manufacturer | Intel |
| Processor generation | 12th gen Intel® Core™ i7 | Ethernet LAN | ✓ |
| Processor model * | i7-12650H | Ethernet LAN data rates | 10,100,1000 Mbit/s |
| Processor cores | 10 | Bluetooth | ✓ |
| Processor boost frequency | 4.7 GHz | Bluetooth version | 5.2 |
| Performance cores | 6 | Ports & interfaces | |
| Efficient cores | 4 | USB 3.2 Gen 1 (3.1 Gen 1) Type-A ports quantity * | 2 |
| Performance-core Max Turbo Frequency | 4.7 GHz | USB 3.2 Gen 1 (3.1 Gen 1) Type-C ports quantity * | 1 |
| Efficient-core Max Turbo Frequency | 3.5 GHz | Ethernet LAN (RJ-45) ports | 1 |
| Efficient-core boost frequency | 3.5 GHz | | |
| Processor cache | 24 MB | | |

| Processor | | Ports & interfaces | |
|-----------------------------------|-------------------------|---|-----------------|
| Processor cache type | Smart Cache | HDMI ports quantity * | 1 |
| Configurable TDP-down | 35 W | HDMI version | 2.1 |
| Processor base power | 45 W | Combo headphone/mic port | ✓ |
| Maximum turbo power | 115 W | Charging port type | DC-in jack |
| Memory | | USB Type-C DisplayPort Alternate Mode | ✓ |
| Internal memory * | 16 GB | Performance | |
| Internal memory type | DDR5-SDRAM | Motherboard chipset | Intel HM670 |
| Memory clock speed | 4800 MHz | Keyboard | |
| Memory form factor | SO-DIMM | Pointing device | Touchpad |
| Memory layout (slots x size) | 2 x 8 GB | Numeric keypad * | ✓ |
| Memory slots | 2x SO-DIMM | Keyboard backlit | ✓ |
| Maximum internal memory * | 64 GB | Keyboard backlit colour | Blue |
| Storage | | Island-style keyboard | ✓ |
| Total storage capacity * | 512 GB | Software | |
| Storage media * | SSD | Operating system installed * | Windows 11 Home |
| Total SSDs capacity | 512 GB | Processor special features | |
| Number of SSDs installed | 1 | Intel Flex Memory Access | ✓ |
| SSD capacity | 512 GB | Intel VT-x with Extended Page Tables (EPT) | ✓ |
| SSD interface | PCI Express 4.0 | Execute Disable Bit | ✓ |
| NVMe | ✓ | CPU configuration (max) | 1 |
| SSD form factor | M.2 | Embedded options available | ✗ |
| Optical drive type * | ✗ | Intel Virtualization Technology for Directed I/O (VT-d) | ✓ |
| Graphics | | Intel Virtualization Technology (VT-x) | ✓ |
| Discrete GPU manufacturer | NVIDIA | Battery | |
| Discrete graphics card model * | NVIDIA GeForce RTX 4050 | Number of battery cells | 3 |
| Discrete graphics card memory | 6 GB | Battery capacity * | 53.5 Wh |
| Discrete graphics memory type | GDDR6 | Power | |
| On-board graphics card * | ✓ | AC adapter power | 120 W |
| On-board GPU manufacturer | Intel | Security | |
| Discrete graphics card * | ✓ | Cable lock slot | ✓ |
| On-board graphics card family | Intel® UHD Graphics | Cable lock slot type | Kensington |
| On-board graphics card model * | Intel® UHD Graphics | Weight & dimensions | |
| On-board graphics card 4K support | ✓ | Width | 359.4 mm |
| | | Depth | 250.3 mm |
| | | Height (front) | 2.19 cm |
| | | Height (rear) | 2.29 cm |
| | | Weight * | 1.98 kg |



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