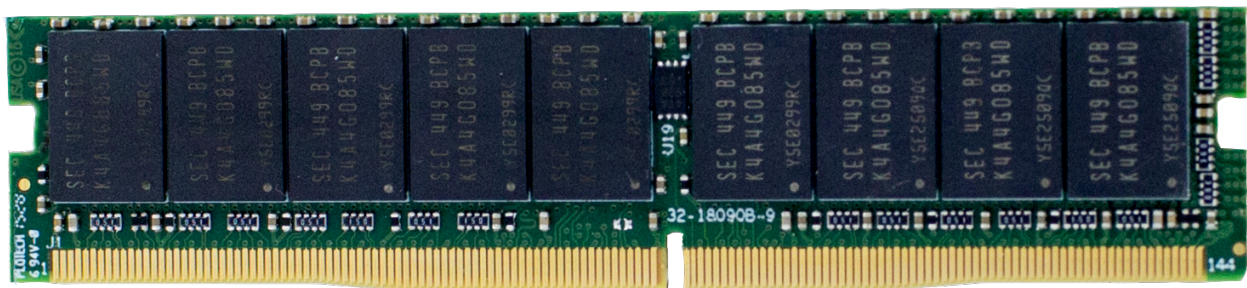# Virtium's DDR4 Memory Modules

High Density Mini-UDIMM 16GB Modules
Ultra Rugged Commercial and Industrial Temp Rated

Virtium P/N: VL51A2G63F-N6SB

Virtium's DDR4 memory modules provide high durability and capacity in small ultra-low-profile (ULP) Mini-UDIMM form-factor. Featuring the PC4-2400 interface, these new memory modules dramatically enhance embedded systems through their footprint, capacity and performance.

Designers of embedded systems seek the optimal blend of attributes in the memory they choose, but often have had to compromise in order to meet their system size, durability and/or cost objectives. Fortunately, these requirements can be filled with Virtium's industry-leading DDR4 memory modules.

Target applications for Virtium's DDR4 ULP Mini-UDIMM modules include blade servers, 1U rack designs, single-board computers, mezzanine cards, and a range of designs with space constraints. Virtium's ULP memory modules are 17.78mm,

compared to standard low-profile modules' 18.75mm. Virtium's DDR4 memory modules deliver the highest performance PC4-2400 solutions, longest product availability, and lower cost of ownership over time. As with all Virtium DDR products, these DDR4 memory modules solutions deliver significant power savings, in addition to bandwidth twice that of DDR3.

Features

- 288-pin, unbuffered mini dual in-line memory module (Mini-UDIMM)
- Supports ECC error detection and correction
- Fast data transfer rate: 2400MT/s, 2133MT/s, 1866MT/s
- $VDD = VDDQ = 1.2V +/-0.060V$
- $VPP = 2.5V$ (2.375 min, 2.75 max)
- $VDDSPD = 2.5V +/-0.25V$
- 16 internal banks; 4 groups of 4 banks each
- Nominal and dynamic on-die termination (ODT)
- Low-power auto self refresh
- Programmable CAS# latency:
- 17 (DDR4-2400), 15 (DDR4-2133), 13 (DDR4-1866)
- Programmable burst length (8)
- Asynchronous reset
- On-die VREFDQ generation and calibration
- Fly-by topology
- On board terminated command, address, and control bus
- Serial presence detect (SPD) EEPROM with thermal sensor
- Thermal sensor range: -40ºC to +125ºC (Max +/-3% accuracy)
- Lead-free, RoHS compliant
- JEDEC pinout
- Gold edge contacts
- PCB: Height 17.78mm (0.700"), double sided component
- Operating temperature (TOPER)1:
  - Commercial (0ºC to +95ºC)
  - Industrial (-40ºC to +95ºC)

About Virtium

Virtium is a leading supplier of industrial-grade solid-state storage and memory solutions for the world's top OEMs. For nearly two decades, it has designed and built its products in the USA, fortified by a global network of sales and support locations. Virtium's world-class technology and unsurpassed customer support result in superior industrial embedded solutions for our interconnected world.