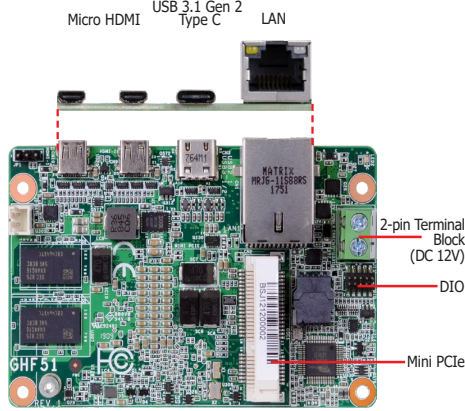




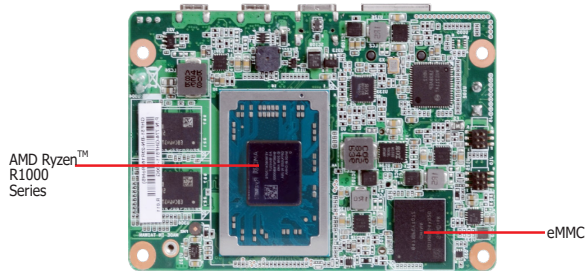
**AMD Ryzen™ Embedded R1000 Series  
1.8" SBC**



**GHF51**



Top View



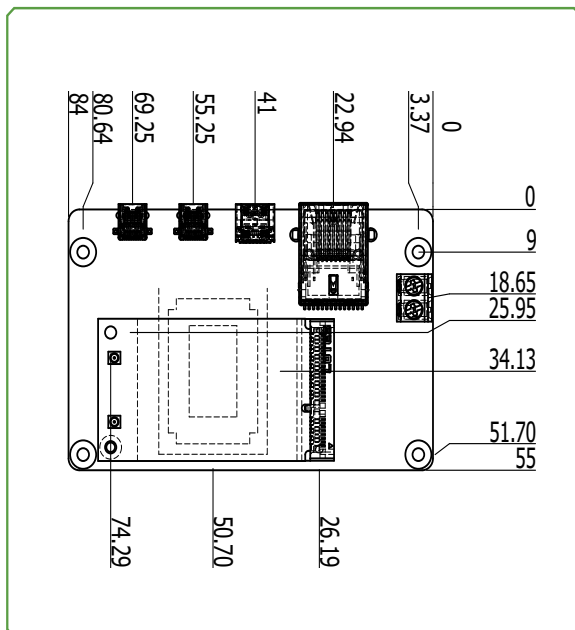
Bottom View

**Features**

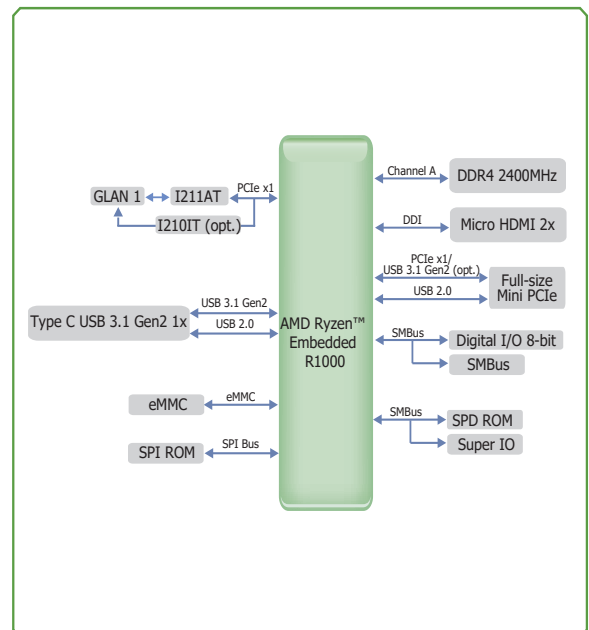
- Small form factor 1.8" SBC for space-limited applications
- Single Channel DDR4 Memory Down up to 4GB/8GB
- HDMI 1.4 resolution supports up to 4096x2160 @ 60Hz
- Expansion and Storage: 1 Mini PCIe, 1 SMBus
- Rich I/O: 1 Intel GbE, 1 USB 3.1 Gen 2, 2 Micro HDMI



**Mechanical Drawing**



**Block Diagram**





**Specifications**

|                               |  |   |
|-------------------------------|--|---|
| <b>SYSTEM</b>                 | <b>Processor</b>   | AMD® Ryzen™ Embedded R1606G, Dual Core, 1MB Cache, 3 CU, 2.6GHz (3.5GHz), 12W<br>AMD® Ryzen™ Embedded R1505G, Dual Core, 1MB Cache, 3 CU, 2.4GHz (3.3GHz), 12W<br>AMD® Ryzen™ Embedded R1305G, Dual Core, 3 CU, 1.5GHz (2.8GHz), 8-10W (Coming soon)<br>AMD® Ryzen™ Embedded R1102G, Dual Core, 3 CU, 1.2GHz (2.6GHz), 6W (Coming soon) |
|                               | <b>Memory</b>  | DDR4 Memory Down up to 4GB/8GB<br>Single Channel DDR4 2400MHz   |
|                               | <b>BIOS</b>  | AMI SPI 64Mbit  |
|                               | <b>GRAPHICS</b>  | <b>Controller</b> AMD Vega GPU with up to 3 computing units.<br><b>Feature</b> H.265 decode/encode support, VP9 decode<br><b>Display</b> 2 x Micro HDMI<br>HDMI 1.4: resolution up to 4096x2160 @ 24Hz  |
| <b>EXPANSION</b>              | <b>Interface</b> 1 x Full-size Mini PCIe (PCIe Gen2/USB 2.0, opt: USB 3.1 Gen2/USB 2.0)  |   |
| <b>ETHERNET</b>               | <b>Controller</b> 1 x Intel® I211AT PCIe (10/100/1000Mbps) or<br>1 x Intel® I210IT PCIe (10/100/1000Mbps) (available upon request) |   |
| <b>REAR I/O</b>               | <b>Ethernet</b>  | 1 x GbE (RJ-45)   |
|                               | <b>USB</b>   | 1 x Type C USB 3.1 Gen 2  |
|                               | <b>Display</b>   | 2 x Micro HDMI (HDMI 1.4)   |
| <b>INTERNAL I/O</b>           | <b>DIO</b>   | 1 x 8-bit DIO   |
|                               | <b>SMBus</b>   | 1 x SMBus   |
| <b>STORAGE</b>                | <b>eMMC</b>  | 1 x 16GB/32GB/64GB eMMC   |
| <b>WATCHDOG TIMER</b>         | <b>Output &amp; Interval</b>   | Software Reset, Programmable via Software from 1 to 655,535 Seconds   |
| <b>SECURITY</b>               | <b>TPM</b>   | FTPM 2.0  |
| <b>POWER</b>                  | <b>Type</b>  | Single 12V +/-5% DC   |
|                               | <b>Connector</b>   | 2-pin Terminal Block  |
|                               | <b>Consumption</b>   | Typical: R1505G: 12V @ 0.37A (4.44W)<br>Max: R1505G: 12V @ 1.74A (20.88W)   |
|                               | <b>RTC Battery</b>   | CR2032 Coin Cell  |
| <b>OS SUPPORT (UEFI Only)</b> | <b>Microsoft/Linux</b>   | Windows 10 IoT Enterprise 64-bit<br>Linux   |
| <b>ENVIRONMENT</b>            | <b>Temperature</b>   | Operating: 0 to 60°C/ -20 to 70°C(opt.)<br>Storage: -40 to 85°C   |
|                               | <b>Humidity</b>  | Operating: 5 to 90% RH<br>Storage: 5 to 90% RH  |
|                               | <b>MTBF</b>  | TBD   |
| <b>MECHANICAL</b>             | <b>Dimensions</b>  | 1.8" SBC Form Factor<br>84mm (3.31") x 55mm (2.17")   |
|                               | <b>Height</b>  | PCB: 1.60mm<br>Top Side: 13.8mm, Bottom Side: 2.00mm  |

**Ordering Information**

| Model Name     | P/N             | Processor | Memory | eMMC  | Display      | GbE | USB 3.1 Gen 2 | Power | Thermal | Temp.     |
|----------------|-----------------|-----------|--------|-------|--------------|-----|---------------|-------|---------|-----------|
| GHF51-BN-43R15 | 770-GHF511-000G | R1505G    | 4 GB   | 32 GB | 2 Micro HDMI | 1   | 1             | 12VDC | Fanless | 0 to 60°C |
| GHF51-BN-43R16 | 770-GHF511-100G | R1606G    | 4 GB   | 32 GB | 2 Micro HDMI | 1   | 1             | 12VDC | Fanless | 0 to 60°C |

**Packing List**

|                                  |                 |
|----------------------------------|-----------------|
| • 1 GHF51 board                  |                 |
| • 1 Heat spreader (Height: 11mm) | A71-808322-000G |

**Optional Items**

|                                     |                 |
|-------------------------------------|-----------------|
| • 2 pole terminal to DC Jack cable  | A81-004013-000G |
| • Power adapter (60W, 12V, DC jack) | 671-106012-000G |
| • 1 Heat sink (Height: 29mm)        | A71-008127-000G |

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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