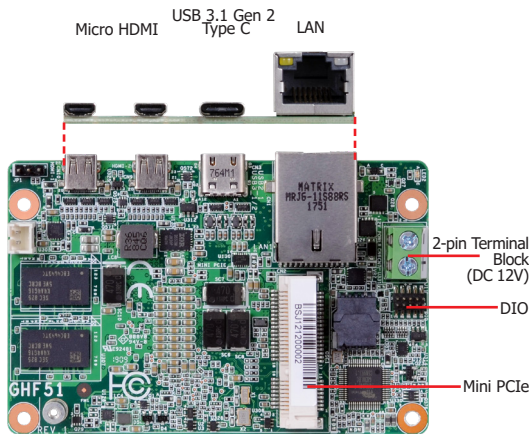




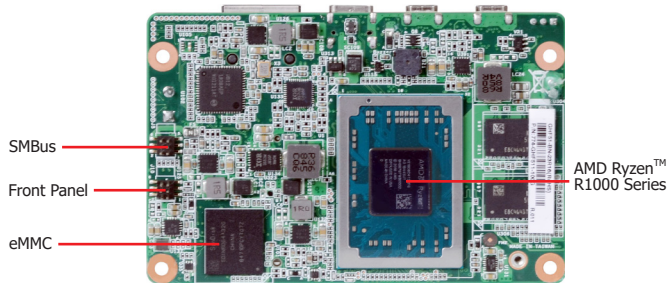
AMD Ryzen™ Embedded R1000 Series 1.8" SBC

GHF51

AMD



Top View



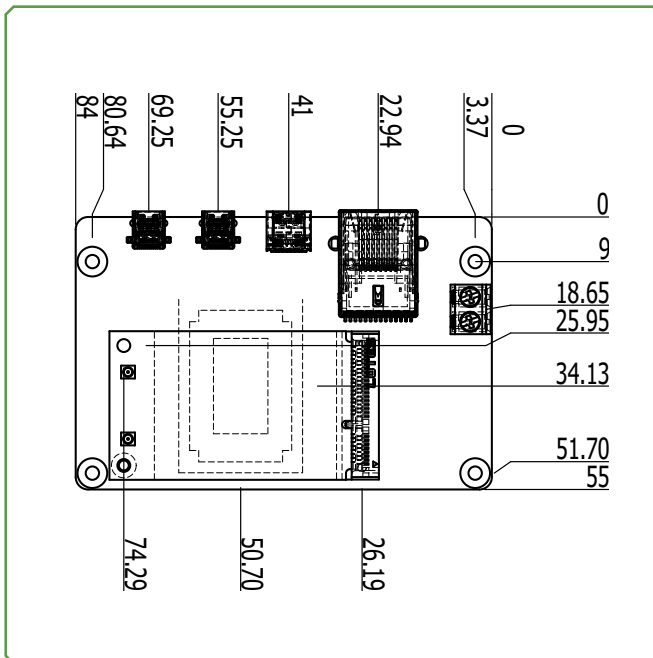
Bottom View

Features

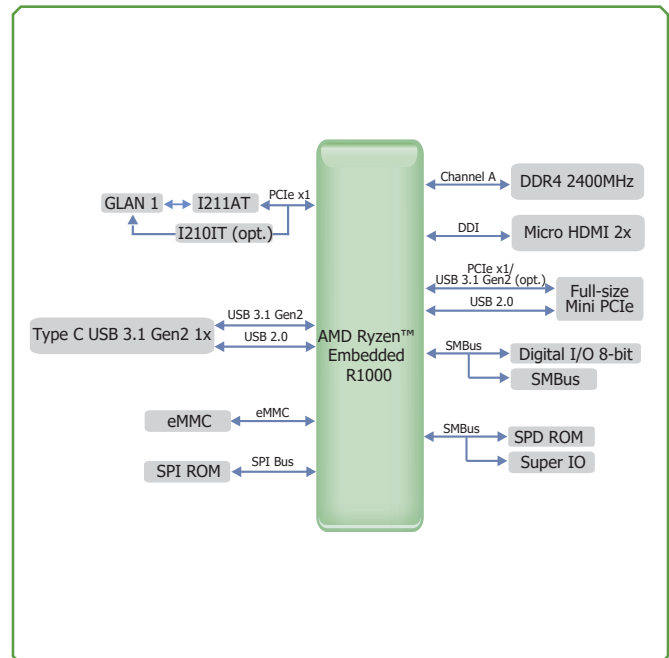
- Small form factor 1.8" SBC for space-limited applications
- Single Channel DDR4 Memory Down up to 4GB/8GB
- HDMI 1.4 resolution supports up to 4096x2160 @ 24Hz
- Expansion and Storage: 1 Mini PCIe, 1 SMBus
- Rich I/O: 1 Intel GbE, 1 USB 3.1 Gen 2, 2 Micro HDMI



Mechanical Drawing



Block Diagram



Specifications

SYSTEM	Processor	AMD® Ryzen™ Embedded R1606G, Dual Core, 1MB Cache, 3 CU, 2.6GHz, 12W AMD® Ryzen™ Embedded R1505G, Dual Core, 1MB Cache, 3 CU, 2.4GHz, 12W AMD® Ryzen™ Embedded R1305G, Dual Core, 3 CU, 1.5GHz, 8-10W AMD® Ryzen™ Embedded R1102G, Dual Core, 3 CU, 1.2GHz, 6W
	Memory	DDR4 Memory Down up to 4GB/8GB Single Channel DDR4 2400MHz
	BIOS	AMI SPI 64Mbit
GRAPHICS	Controller	AMD Vega GPU with up to 3 computing units.
	Feature	H.265 decode/encode support, VP9 decode
	Display	2 x Micro HDMI HDMI 1.4: resolution up to 4096x2160 @ 24Hz
EXPANSION	Interface	1 x Full-size Mini PCIe (PCIe Gen2/USB 2.0, opt: USB 3.1 Gen2/USB 2.0)
ETHERNET	Controller	1 x Intel® I211AT PCIe (10/100/1000Mbps) or 1 x Intel® I210IT PCIe (10/100/1000Mbps) (available upon request)
REAR I/O	Ethernet	1 x GbE (RJ-45)
	USB	1 x Type C USB 3.1 Gen 2
	Display	2 x Micro HDMI (HDMI 1.4)
INTERNAL I/O	DIO	1 x 8-bit DIO
	SMBus	1 x SMBus
STORAGE	eMMC	1 x 16GB/32GB/64GB eMMC
WATCHDOG TIMER	Output & Interval	Software Reset, Programmable via Software from 1 to 655,535 Seconds
SECURITY	TPM	fTPM 2.0
POWER	Type	Single 12V +/-5% DC
	Connector	2-pin Terminal Block
	Consumption	Typical: R1505G: 12V @ 0.37A (4.44W) Max: R1505G: 12V @ 1.74A (20.88W)
	RTC Battery	CR2032 Coin Cell
OS SUPPORT (UEFI Only)	Microsoft/Linux	Windows 10 IoT Enterprise 64-bit Linux (Kernel 5.3)
ENVIRONMENT	Temperature	Operating: 0 to 60°C/ -20 to 70°C(opt.) Storage: -40 to 85°C
	Humidity	Operating: 5 to 90% RH Storage: 5 to 90% RH
	MTBF	872,484 hrs @ 25°C; 635,789 hrs @ 45°C; 460,442 hrs @ 60°C
MECHANICAL	Dimensions	1.8" SBC Form Factor 84mm (3.31") x 55mm (2.17")
	Height	PCB: 1.60mm Top Side: 13.8mm, Bottom Side: 2.00mm
CERTIFICATION	Certification	CE, FCC, RoHS, UKCA

Ordering Information

Model Name	P/N	Processor	Memory	eMMC	Display	GbE	USB 3.1 Gen 2	Power	Thermal	Temp.
GHF51-BN-46R15	770-GHF512-000G	R1505G	4 GB	64 GB	2 Micro HDMI	1	1	12VDC	Fanless	0 to 60°C
GHF51-BN-46R16	770-GHF512-100G	R1606G	4 GB	64 GB	2 Micro HDMI	1	1	12VDC	Fanless	0 to 60°C
GHF51-EN-46R16	770-GHF512-300G	R1606G	4 GB	64 GB	2 Micro HDMI	1	1	12VDC	Fanless	-20 to 70°C
GHF51-BN-46R11	770-GHF512-400G	R1102G	4 GB	64 GB	2 Micro HDMI	1	1	12VDC	Fanless	0 to 60°C
GHF51-BN-46R13	770-GHF512-500G	R1305G	4 GB	64 GB	2 Micro HDMI	1	1	12VDC	Fanless	0 to 60°C
GHF51-BN-86R16	770-GHF512-600G	R1606G	8 GB	64 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
• 1 Screw of Mini PCIe card	A32-E12016-050G

Optional Items

• Power adapter (60W, 12V, DC jack)	671-106012-000G
• SMBus cable	A81-009353-016G
• 2-pole terminal to DC Jack cable	A81-004013-000G
• DIO cable	A81-009203-018G
• Front panel cable	A81-020047-016G
• Heat sink for 0~60°C (Height: 29.66mm)	A71-008127-010G
• Heat sink for -20~70°C (Height: 30.7mm)	A71-008127-020G