

Unified Memory Systems Comparison (128GB+ RAM)

AI Workstations & Desktop Supercomputers — September 2026

NVIDIA DGX Spark / ASUS Ascent GX10

Memory: 128 GB LPDDR5x unified | Chip: NVIDIA GB10 Grace Blackwell Superchip (20-core Arm CPU + Blackwell GPU) | AI Performance: Up to 1 PFLOP FP4 | Memory Bandwidth: 273 GB/s | Availability: DGX Spark via NVIDIA Marketplace; ASUS Ascent GX10 via ASUS | Price: ~\$2,000–\$3,000

- ✓ True unified memory (CPU/GPU share the same pool)
- ✓ 1 PFLOP AI performance at FP4 precision
- ✓ Supports models up to 200B parameters locally
- ✓ Compact (150x150x50.5 mm, 1.2 kg)
- ✓ Dual-system stacking via NVLink-C2C and ConnectX-7 for scaling
- ✓ Pre-loaded with NVIDIA AI stack (NemoClaw, TensorRT, PyTorch, etc.)
- ✗ Arm-based ecosystem (limited x86 software compatibility)
- ✗ Proprietary NVIDIA software stack required
- ✗ Limited to 128 GB (fixed)

Apple Mac Studio (M5 Ultra)

Memory: 128–512 GB unified | Chip: M5 Ultra (36-core CPU, 80-core GPU with Neural Accelerators) | AI Performance: Up to 4.3x peak AI compute vs. M3 Ultra; 9.8x vs. M1 Ultra | Memory Bandwidth: 1.2 TB/s (50% higher than prior gen) | Availability: Pre-order now, shipping September 22, 2026 | Price: Starts at \$5,499 (education: \$5,099)

- ✓ Massive unified memory (up to 512 GB)
- ✓ Highest memory bandwidth at 1.2 TB/s
- ✓ Runs massive frontier-class LLMs entirely on-device
- ✓ Thunderbolt 5 clustering (4 systems = 3x faster inference)
- ✓ macOS 27 with Core AI framework for local model deployment
- ✓ Extremely quiet, compact design
- ✗ macOS ecosystem lock-in
- ✗ Highest price point (\$5,499+)
- ✗ No NVLink-style GPU memory pooling
- ✗ Limited to Apple's software ecosystem (MLX, Core AI)

Feature	DGX Spark / GX10	Mac Studio M5 Ultra
Unified Memory	128 GB (fixed)	128–512 GB
Best For	Enterprise AI dev, NVIDIA Stack users, macOS ecosystem users	
Memory Bandwidth	273 GB/s	1.2 TB/s
AI Performance	1 PFLOP FP4	4.3x vs. M3 Ultra
Availability	Now (NVIDIA Marketplace Pre-Order) now, ships Sept 22, 2026	
Price	~\$2,000–\$3,000	\$5,499+ (education: \$5,099)