GPUpartner

VALIDATION REPORT · TEXT GENERATION

gpt-oss 120B

on RTX 4090 · MXFP4 · Ollama / LM Studio · Chat

STATUS · OCT 22, 2026

Not validated

0 of 2 checks pass

gpt-oss 120B at MXFP4 needs 60.2 GB; the RTX 4090 can use 24.0 GB. The smallest machine we checked that runs it is the RTX PRO 5000 Blackwell 72 GB.

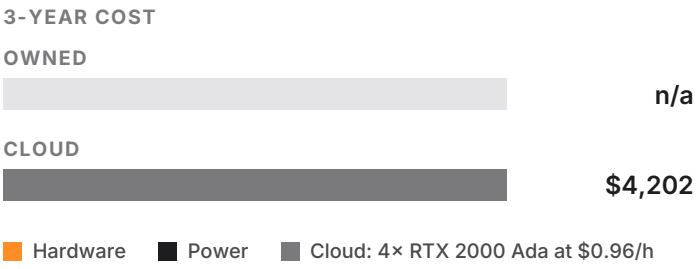
VALIDATION

CHECK	TARGET	RESULT	STATUS
Fits in GPU memory	24.0 GB usable	60.2 GB needed	FAIL
Headroom	5% free	none	FAIL
Context for chat	16K or more	–	NOT TESTED
Writing speed	15 tok/s or more	–	NOT TESTED
First reply	under 3 s, 2K prompt	–	NOT TESTED

Targets: a reply you can read along with, a first reply the use case tolerates, and 5% of memory left free. Calculated from published specs, not benchmarked.

BUDGET

HARDWARE, ONE-TIME	MSRP not entered
POWER, PER YEAR	Doesn't run on this machine
CLOUD INSTEAD, PER YEAR	$1,401
3-YEAR TOTAL, OWNED	n/a
3-YEAR TOTAL, CLOUD	$4,202
BREAK-EVEN	n/a



Budget basis: 4 h a day, power at $0.18 per kWh, cloud at RunPod on-demand prices as of Oct 22, 2026. Hardware at the MSRP entered in the calculator, not a GPU Partner quote. A 3-year view; resale value, staff time and taxes aren't counted.

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TECHNICAL DETAIL · TEXT GENERATION

gpt-oss 120B

on RTX 4090 · MXFP4 · Ollama / LM Studio · Chat

SETUP

PARAMETERS	117B, 5.1B active
PRECISION	MXFP4
CONTEXT	8K, auto
CHATS AT ONCE	1
USE	Chat
RUNS IN	Ollama / LM Studio
HARDWARE	RTX 4090
GPU CAN USE	24.0 GB of 24.0 GB

MEMORY

WEIGHTS	59.0 GB
CONTEXT	293 MB
RUNTIME	944 MB
SYSTEM	0.0 GB
OVER BY	36.2 GB

SUGGESTED CHANGES

3× RTX 4090	Fits across the cards, 128K context
SPILL TO RAM	Runs, slower, 26 tok/s
RTX PRO 5000 BLACKWELL 72 GB	Runs it with 128K context
M5 ULTRA · 96 GB	Runs it with 128K context

SAME MODEL, OTHER MACHINES

RTX 5090	Too big
RTX PRO 6000 BLACKWELL	MXFP4 · 197 tok/s
M5 MAX 128 GB	MXFP4 · 77 tok/s
M3 ULTRA 256 GB	MXFP4 · 84 tok/s
DGX SPARK 128 GB	MXFP4 · 47 tok/s
RYZEN AI MAX+ 395 128 GB	MXFP4 · 37 tok/s
DGX STATION GB300	MXFP4 · 346 tok/s

HOW TO RUN IT

OLLAMA	`ollama run gpt-oss:120b`
LLAMA.CPP	`llama-server -hf unsloth/gpt-oss-120b-GGUF`
VLLM	`vllm serve openai/gpt-oss-120b`
MLX (MAC)	`mlx_lm.chat --model mlx-community/gpt-oss-120b-MXFP4-Q4`
MODEL CARD	huggingface.co/openai/gpt-oss-120b

METHOD AND ASSUMPTIONS

Memory is the weights (parameters times bits per weight, read from each model's config.json), the context cache for every chat, and the runtime, against the memory this GPU can use after the OS and display take theirs. Writing speed is memory bandwidth over the bytes read per token, plus a per-layer latency, calibrated against llama.cpp benchmarks. First reply is the prompt's FLOPs over the chip's dense 16-bit TFLOPS at the runtime's measured efficiency. Running cost is power at the wall at your rate and hours; the cloud figure is the cheapest RunPod on-demand GPU that runs the same job. Accuracy: memory lands within about a gigabyte; speeds and times are rough, about ±25%. Model data and hardware specs checked Oct 2026; cloud prices are RunPod's on-demand list as of Oct 22, 2026. Report VR-0BY3CPR, generated October 22, 2026.