GPUpartner

VALIDATION REPORT · TEXT GENERATION

Mistral Small 4 119B

on M3 Ultra 256 GB · FP8 · Ollama / LM Studio · Chat

STATUS · OCT 22, 2026

Validated with conditions

4 of 5 checks pass

Mistral Small 4 119B at FP8 runs on the M3 Ultra 256 GB with 256K of context at about 57 tokens a second.

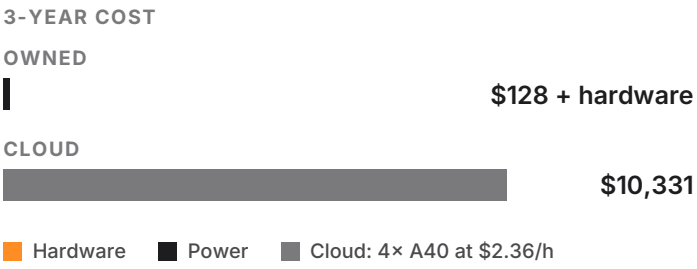
VALIDATION

CHECK	TARGET	RESULT	STATUS
Fits in GPU memory	192 GB usable	119 GB needed	PASS
Headroom	5% free	73.1 GB free (38%)	PASS
Context for chat	16K or more	256K	PASS
Writing speed	15 tok/s or more	57 tok/s	PASS
First reply	under 3 s, 2K prompt	3.7 s	CAUTION

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	$43 · 162 W at the wall
CLOUD INSTEAD, PER YEAR	$3,444
3-YEAR TOTAL, OWNED	Hardware + $128 power
3-YEAR TOTAL, CLOUD	$10,331
BREAK-EVEN	Needs the hardware MSRP



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

Mistral Small 4 119B

on M3 Ultra 256 GB · FP8 · Ollama / LM Studio · Chat

SETUP

PARAMETERS	119B, 6.5B active
PRECISION	FP8
CONTEXT	256K, auto
CHATS AT ONCE	1
USE	Chat
RUNS IN	Ollama / LM Studio
HARDWARE	M3 Ultra 256 GB
GPU CAN USE	192 GB of 256 GB

SAME MODEL, OTHER MACHINES

RTX 4090	Too big
RTX 5090	Too big
RTX PRO 6000 BLACKWELL	5-bit · 171 tok/s
M5 MAX 128 GB	5-bit · 66 tok/s
DGX SPARK 128 GB	FP8 · 27 tok/s
RYZEN AI MAX+ 395 128 GB	5-bit · 30 tok/s
DGX STATION GB300	FP8 · 287 tok/s

MEMORY

WEIGHTS	113 GB
CONTEXT	5.6 GB
RUNTIME	640 MB
SYSTEM	64.0 GB
FREE	73.1 GB

HOW TO RUN IT

LLAMA.CPP	`llama-server -hf unsloth/Mistral-Small-4-119B-2603-GGUF`
VLLM	`vllm serve mistralai/Mistral-Small-4-119B-2603`
MLX (MAC)	`mlx_lm.chat --model mlx-community/Mistral-Small-4-119B-2603-4bit`
MODEL CARD	huggingface.co/mistralai/Mistral-Small-4-119B-2603

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-1X18ZP4, generated October 22, 2026.