

PAC

Private AI Computer - Product Build, Pricing & Assembly Guide



PAC HOME	Target build cost	CAD \$2,200-\$2,700
	Customer plan	\$74.99/month x 60 months
	5-year contract value	CAD \$4,499.40
PAC BUSINESS	Target build cost	CAD \$7,000-\$9,000
	Customer plan	\$249-\$299/month x 60 months
	5-year contract value	CAD \$14,940-\$17,940

Important: These are product-development targets, not final retail quotations. Component prices and availability move quickly. Heavy generative video/movie workloads should use PAC cloud-burst compute so the home appliance can stay affordable.

1. Final Product Architecture

PAC should be sold as two products only: **PAC Home** and **PAC Business**. Both use the same PAC software platform so the customer sees one interface for AI, creation, files, storage, automation, cameras, tutoring, knowledge and future applications.

Capability	PAC Home	PAC Business
AI assistant / tutoring	Local-first + optional cloud	Local-first + higher cloud allowance
Images / design	Local generation	Local multi-user generation
Prompt-to-video / movies	Hybrid: local prep + cloud burst	Hybrid: local + stronger cloud burst
Engineering drawings	AI-assisted drafting; human review	AI-assisted drafting, team workflows
Personal/business knowledge	Private local search / RAG	Departmental knowledge + permissions
Storage	8TB starting local storage	24TB+ redundant storage
Home/building automation	Matter / Thread / Zigbee / APIs	Home + BACnet / Modbus / APIs
Cameras / vision	Local event search and analytics	Higher camera count / concurrent analytics
Alexa / voice	Alexa integration + PAC Voice path	Voice + meeting / office integrations

Design rule: PAC performs everyday AI, storage, search, automation and many creative tasks locally. Extremely GPU-heavy jobs - especially long, high-resolution generative video - can burst to managed cloud compute while the PAC remains the user-facing system.

2. PAC Home - Recommended Launch Hardware

Part	Recommended specification	Planning cost (CAD)
CPU	AMD Ryzen 7 9700X-class, 8C/16T	450-550
GPU	NVIDIA RTX 5060 Ti 16GB	600-800
Motherboard	B850/X870, 2.5GbE, Wi-Fi, multiple M.2	250-400
Memory	64GB DDR5; design board for 128GB upgrade	220-350
OS / model drive	2TB NVMe PCIe 4/5 SSD	180-280
Personal storage	8TB NAS HDD or equivalent	400-500
Power supply	850W ATX 3.1, native 12V-2x6	160-220
CPU cooling	Premium air cooler or 240mm AIO	100-180
Case / custom PAC shell	Compact airflow chassis + custom panels	180-300
Fans	3-4 premium PWM fans	80-140
Smart-home radios	Matter/Thread + Zigbee; Z-Wave optional	70-140
Front display / controls	5-inch display, power/status controller	70-140
Cables / lighting / trim	Braided cables, combs, LED bars, feet	80-150

Target PAC Home hardware cost: approximately CAD \$2,200-\$2,700 once your engineering team standardizes the chassis and sources parts at system-integrator/distributor pricing. Retail one-off prototypes may cost more.

Customer model: \$74.99/month for 60 months = CAD \$4,499.40 contract revenue before taxes. Hardware is included; terms should address equipment ownership/return, early cancellation, warranty, cloud-compute allowance and upgrades.

3. PAC Business - Recommended Launch Hardware

Part	Recommended specification	Planning cost (CAD)
CPU	AMD Ryzen 9 9950X-class	650-800
GPU	2 x NVIDIA RTX 5080-class 16GB	2,900-4,800
Motherboard	X870E workstation/creator board with x8/x8 GPU support, 10GbE	650-800
Memory	96-128GB DDR5	450-900
AI drives	2 x 4TB NVMe	650-900
Business storage	2 x 12TB NAS drives mirrored	900-1,200
Power supply	1500-1600W ATX 3.1	350-500
CPU cooling	360mm AIO or premium workstation cooling	200-300
Chassis	Large premium open-frame / workstation chassis	300-500
Networking / radios	10GbE, Wi-Fi, optional building-control gateways	150-300
Fans / cable / front display	Premium fans, braided cable, OLED/LCD status	250-400

Target PAC Business build: CAD \$7,000-\$9,000 depending on GPU procurement and storage. A 60-month plan around \$249-\$299/month produces CAD \$14,940-\$17,940 of contract revenue before taxes and gives room for support, replacement reserve, cloud compute and margin.

For businesses with substantially heavier workloads, PAC Business can move to higher-memory professional GPUs without creating another public product tier; quote the hardware and cloud-compute allowance inside the same PAC Business family.

4. Parts That Make PAC Look Like a Product - Not a DIY PC

Design item	What to use	Purpose
Front status display	5-inch IPS/OLED HDMI or USB display behind smoked glass	Shows PAC name, temperatures, storage, network and AI status
Smoked glass side	Tempered smoked glass / dark acrylic	Premium view of internal hardware without looking like a gaming PC
Custom front panel	CNC or laser-cut anodized black aluminum	Creates a repeatable PAC industrial design
Lighting	Diffused blue-white LED bars, not RGB rainbow strips	Consistent PAC visual identity
Cable management	Black braided extensions + aluminum cable combs	Makes power and GPU wiring intentional and clean
Fans	Premium black PWM fans with subtle light rings	Quiet 24/7 operation and polished appearance
Feet	Machined aluminum anti-vibration feet	Makes appliance feel like premium AV equipment
Internal labels	Laser-etched PAC / Storage / AI / Service labels	Serviceability and visual polish
Rear I/O plate	Custom engraved panel for LAN, USB, service, power	Installer-friendly, clean finished back
Dust filtration	Removable magnetic / slide-out filters	Required for long-term household operation
Security	TPM, encrypted drives, lockable service panel	Protects local data and discourages tampering

5. Assembly Sequence

- 1. Chassis first.** Build or modify the frame, front display panel, airflow path, dust filters and rear I/O before installing electronics.
- 2. Bench-test the core.** Install CPU, cooler, RAM and OS NVMe on the motherboard; update BIOS and run a memory/CPU stability test before adding the GPU.
- 3. Install GPU and power.** Use the PSU's native GPU connector and keep power cables fully seated, strain-relieved and away from sharp bends.
- 4. Install storage.** Keep the OS/model SSD separate from customer-data storage. For Business, mirror storage drives and test a simulated drive failure.
- 5. Add PAC control hardware.** Front display, status LEDs, temperature sensors and a service button should connect independently of the AI UI where possible.
- 6. Add home/building interfaces.** Matter/Thread, Zigbee and optional Z-Wave for Home; add BACnet/Modbus/KNX gateways only as required for Business.
- 7. Install PAC OS.** Linux host, container runtime, NVIDIA stack, storage services, AI runtime, PAC orchestration, Home Assistant/building integrations and remote management.
- 8. Burn-in.** Run 24-48 hours of CPU/GPU/storage/network load while logging temperatures, fan speed, crashes and power draw.
- 9. Security test.** Encrypt customer storage, isolate management access, rotate default credentials and verify the appliance continues core local functions if Internet is disconnected.
- 10. Final cosmetic assembly.** Fit smoked panels, diffusers, cable combs, branded plates and feet only after the system passes thermal and stability tests.

6. Where to Buy Prototype Parts in Canada

Category	Good prototype sources
CPU / motherboard / RAM / SSD	Canada Computers, Memory Express, Best Buy Canada, Newegg Canada
NVIDIA GPU	Best Buy Canada, Canada Computers, Memory Express; for production move to authorized distribution / OEM
Power supplies / cooling	Corsair Canada, Canada Computers, Memory Express
NAS drives	Memory Express, Canada Computers, authorized Seagate / WD distributors
Custom aluminum / acrylic	Local CNC / laser-cut fabrication shop; prototype with 2020/2040 extrusion if needed
Display / electronics	DigiKey Canada, Mouser Canada, authorized Raspberry Pi / Waveshare resellers
Smart-home radios	Home Assistant / Nabu Casa hardware, authorized Zigbee/Z-Wave distributors

Recent Canadian reference prices used to sanity-check this guide include ASUS ProArt X870E-Creator WiFi at CAD \$729.99, NVIDIA RTX 5080 Founders Edition at CAD \$1,449.99 when available, Corsair RM1000x-class power supplies around CAD \$225-\$295, NZXT Kraken 360 around CAD \$249.99, and Seagate IronWolf 8TB around CAD \$460. Retail availability and pricing can change quickly, so production economics should be negotiated through distribution rather than based on shelf pricing.

7. Commercial Recommendation

PAC Home: keep the bill of materials near CAD \$2,500 and sell at approximately \$74.99/month for 60 months. The hardware should be included, with a clearly disclosed return/ownership and upgrade policy. Heavy movie generation should use metered or fair-use cloud compute so one power user cannot consume the entire margin.

PAC Business: start around \$249-\$299/month for 60 months with much higher storage, concurrent AI and cloud-compute allowances. Installation, custom engineering integrations and unusual storage requirements can be quoted separately while remaining under the single PAC Business product name.

Before taking binding preorders, have Canadian legal/accounting professionals review the 60-month service/equipment agreement, early-cancellation terms, privacy commitments, taxes and hardware ownership. Engineering drawings, healthcare assistance and safety-critical automations should also be presented with appropriate human-review and professional-approval boundaries.