

Assembler un PC d'IA en 2026

Usages :

- Serveur pour enseignement robotique et IA
- Pilotage de robots temps-réel avec ROS2
- Inférence de larges modèles d'IA, ex.
- Fine-tuning de modèles d'IA, ex. LeRobot

Configuration pour un total d'environ 1500€ :

- Carte graphique Nvidia RTX 5070 Ti 16GB (~900€)
- Processeur AMD AM5 Ryzen 7 7700 (~190€)
 - https://www.reddit.com/r/MSI_Gaming/comments/1090yb6/65w_ryzen_7_7700_performance_scaling_with_pbo/
- Carte mère moyenne gamme (~150€) AMD AM5 PCIe 5.0 x16 b650/e
 - <https://pausehardware.com/comparatif-des-chipsets-amd-x870-x670-b650-ryzen/>
 - <https://www.cdiscount.com/mp-267-asu1705279946652.html>
 - <https://www.pccomponentes.fr/carte-mere-gigabyte-b650e-eagle-amd-b650-socket-am5-ddr5-atx-wifi-6e-pcie-50-raid-rgb>
 - <https://www.pccomponentes.fr/carte-mere-asus-tuf-gaming-b650e-plus-wifi-b650-am5-ddr5-atx-wifi-6e-pcie-50-raid>
 - 1 x PCIe 5.0 x16 @CPU
 - 1 x PCIe 4.0 x16 (max. @x1) @PCH
 - 3 x M2 (1 x PCIe 5.0 et 2 x PCIe 4.0)
 - 1 x USB 20GBps
 - 4 x ports SATA
 - Wi-Fi 6E, Ethernet Realtek 2,5 Gbit
 - 4 x DDR5
- 64GB DDR5 5600 MHz
- Alimentation 750-850W 80+ Gold
- Boîtier silencieux Antec P10C silent

5070 Ti

- Installer nvidia-driver >570 et linux-kernel >6.11

- Installer la version open du driver : `nvidia-driver-570-open`

Donc par exemple :

```
export distro="ubuntu2404"
export arch="x86_64"
export version="570"
wget https://developer.download.nvidia.com/compute/cuda/repos/$distro/$arch/cuda-keyring_1.1-1_all.deb
sudo dpkg -i cuda-keyring_1.1-1_all.deb
sudo apt update
sudo apt install nvidia-driver-pinning-$version
sudo IGNORE_PREEMPT_RT_PRESENCE=1 apt install cuda-drivers nvidia-driver-$version-open
```

Benchmark glmark2 en résolution 1920x1080 <https://openbenchmarking.org/test/pts/glmark2>

```
glmark2 -s 1920x1080
=====
glmark2 2023.01
=====

OpenGL Information
GL_VENDOR:      NVIDIA Corporation
GL_RENDERER:    NVIDIA GeForce RTX 5070 Ti/PCIe/SSE2
GL_VERSION:     4.6.0 NVIDIA 570.211.01
Surface Config: buf=32 r=8 g=8 b=8 a=8 depth=24 stencil=0 samples=0
Surface Size:   1920x1080 windowed
=====

[build] use-vbo=false: FPS: 17118 FrameTime: 0.058 ms
[build] use-vbo=true: FPS: 29160 FrameTime: 0.034 ms
[texture] texture-filter=nearest: FPS: 24267 FrameTime: 0.041 ms
[texture] texture-filter=linear: FPS: 29185 FrameTime: 0.034 ms
[texture] texture-filter=mipmap: FPS: 29395 FrameTime: 0.034 ms
[shading] shading=gouraud: FPS: 28971 FrameTime: 0.035 ms
[shading] shading=blinn-phong-inf: FPS: 28964 FrameTime: 0.035 ms
[shading] shading=phong: FPS: 28750 FrameTime: 0.035 ms
[shading] shading=cel: FPS: 28703 FrameTime: 0.035 ms
[bump] bump-render=high-poly: FPS: 26538 FrameTime: 0.038 ms
[bump] bump-render=normals: FPS: 29854 FrameTime: 0.033 ms
```

```
[bump] bump-render=height: FPS: 29795 FrameTime: 0.034 ms
[effect2d] kernel=0,1,0;1,-4,1;0,1,0;: FPS: 25300 FrameTime: 0.040 ms
[effect2d] kernel=1,1,1,1;1,1,1,1;1,1,1,1;: FPS: 19425 FrameTime: 0.051 ms
[pulsar] light=false:quads=5:texture=false: FPS: 27432 FrameTime: 0.036 ms
[desktop] blur-radius=5:effect=blur:passes=1:separable=true:windows=4: FPS: 9557 FrameTime:
0.105 ms
[desktop] effect=shadow:windows=4: FPS: 17248 FrameTime: 0.058 ms
[buffer] columns=200:interleave=false:update-dispersion=0.9:update-fraction=0.5:update-
method=map: FPS: 3425 FrameTime: 0.292 ms
[buffer] columns=200:interleave=false:update-dispersion=0.9:update-fraction=0.5:update-
method=subdata: FPS: 3852 FrameTime: 0.260 ms
[buffer] columns=200:interleave=true:update-dispersion=0.9:update-fraction=0.5:update-
method=map: FPS: 4847 FrameTime: 0.206 ms
[ideas] speed=duration: FPS: 24299 FrameTime: 0.041 ms
[jellyfish] <default>: FPS: 20993 FrameTime: 0.048 ms
[terrain] <default>: FPS: 2663 FrameTime: 0.376 ms
[shadow] <default>: FPS: 17595 FrameTime: 0.057 ms
[refract] <default>: FPS: 6201 FrameTime: 0.161 ms
[conditionals] fragment-steps=0:vertex-steps=0: FPS: 28276 FrameTime: 0.035 ms
[conditionals] fragment-steps=5:vertex-steps=0: FPS: 28159 FrameTime: 0.036 ms
[conditionals] fragment-steps=0:vertex-steps=5: FPS: 23158 FrameTime: 0.043 ms
[function] fragment-complexity=low:fragment-steps=5: FPS: 24062 FrameTime: 0.042 ms
[function] fragment-complexity=medium:fragment-steps=5: FPS: 27253 FrameTime: 0.037 ms
[loop] fragment-loop=false:fragment-steps=5:vertex-steps=5: FPS: 28133 FrameTime: 0.036 ms
[loop] fragment-steps=5:fragment-uniform=false:vertex-steps=5: FPS: 28144 FrameTime: 0.036 ms
[loop] fragment-steps=5:fragment-uniform=true:vertex-steps=5: FPS: 28068 FrameTime: 0.036 ms
=====
                                glmark2 Score: 22083
=====
```

Config laptop

- suspend-then-hibernate swap partition
 - <https://forums.linuxmint.com/viewtopic.php?t=388398>
 - <https://forums.linuxmint.com/viewtopic.php?t=287015>
 - <https://forums.linuxmint.com/viewtopic.php?t=322002>

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