

PC



- [Linux](#)
 - [Linux](#) (2026 8)
 - [Linux](#) (2026 8)
- [HDD](#)
- [S.M.A.R.T.](#)
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- [Network Attached Storage](#)

Linux

Linux



Linux (2026 8)

1. Linux

Linux OS
Linux GNU
Linux OS Linux

- : GPL

2.

Linux

Debian / Ubuntu (DEB)

- :
 .deb
- : apt (Advanced Packaging Tool), dpkg
- :
 .rpm

Red Hat / Fedora (RPM)

- :
 .rpm

- `rpm` : `.rpm`
- `dnf` (`yum`), `rpm`
- `rpm` : `rpm` LTS

3. `rpm`

`rpm`

Ubuntu (`rpm`) `rpm` / `rpm`

- `rpm` : Debian (Ubuntu `rpm`)
- `rpm` : `rpm` Linux `rpm` GUI
- `rpm` : `rpm` Windows `rpm` Mac
- `rpm` : `rpm` LTS
- `rpm` : `rpm`

Linux Mint (`rpm`) `rpm` / Windows

`rpm`

- `rpm` : Debian (Ubuntu `rpm`)
- `rpm` : Windows
- `rpm` : `rpm` Windows
- `rpm` : `rpm` Mint Tools
- `rpm` : `rpm`

Zorin OS (`rpm`) `rpm` / `rpm` UI

`rpm`

- `rpm` : Debian (Ubuntu `rpm`)
- `rpm` : `rpm` Windows `rpm` macOS
- `rpm` : `rpm` Pro `rpm` Core `rpm` Windows 11
- `rpm` : `rpm` UI `rpm` Mac
- `rpm` : `rpm`

Debian (`rpm`) `rpm` / `rpm`

- `rpm` : `rpm`

- □ :

[illegible]

Ubuntu OS

AlmaLinux / Rocky Linux () /

- `rhel` : Red Hat (RHEL) ()

-  CentOS

[illegible]

OS

[illegible]

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Alpine Linux ()

Docker

- `libc` : `libc` (musl libc / busybox `libc`)

- □ ■

[illegible]

□ □ □ □ □ apk □ □ □ □ □ C □ □ □ □ □

OS

 Docker

[illegible]

musl

MB

BusyBox

NixOS ()

-  :  (Nix)

- 

 configuration.nix

[illegible][illegible]

Git

Arch Linux ()

- □ □ : □ □ □

-  :  KISS (Keep It Simple, Stupid)

Linux

(2026 8)

1.

DE

Linux OS CUI

GUI

DE

- **Windows macOS** : Windows macOS OS GUI
- Linux
- Ubuntu

2.

GNOME ()

- : Ubuntu Fedora DE
- : Mac
- Extensions

KDE Plasma ()

Windows

- : DE
- : Windows

Xfce ()

- Cinnamon (□□□□) □ Windows□□□□□□ □ Linux Mint
□□□

- MATE () GNOME 2

3. ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ X11 ☒ Wayland

X11 (X Window System)

-  :



-  :




Wayland

-  : X11


-  :


 DE

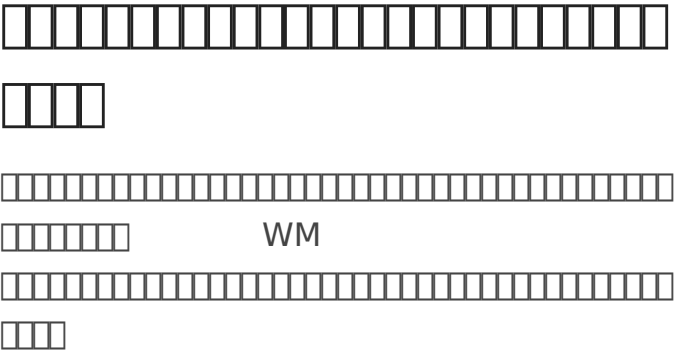
-  :

 nVidia




GNOME KDE Plasma
Wayland

4.



-  : Windows
 DE

GNOME KDE Plasma

○  : 

 An



Arch Linux ☐ NixOS

• [] :
○ Wayland []

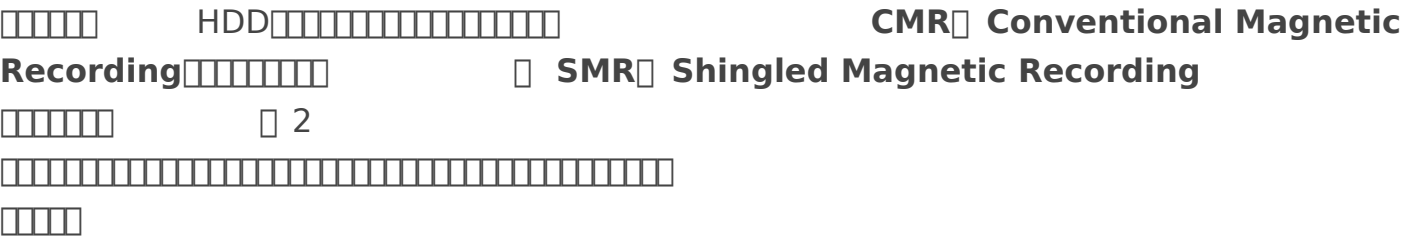
- **Windows** ██ :
- ████████████████████ **KDE Plasma** █ **Cinnamon** █████
Wayland ████████████████

- **PC** :
 - **Xfce** **MATE**
X11

-  :
-  i3, Sway,
Hyprland  Niri


HDD

1. CMR SMR



CMR Conventional Magnetic Recording

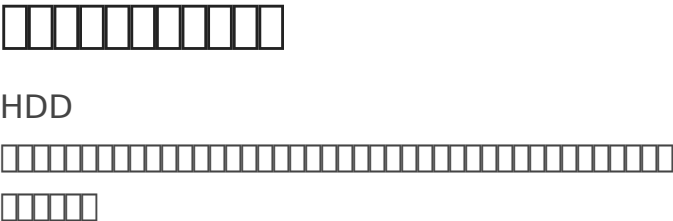
- **Track** :
- **Head** :
- **RAID** :
- **SMR** :

NAS

SMR Shingled Magnetic Recording

- **Track** :
- **Head** :
- **RAID** :

2. vs NAS



- **RAID** [] : [] HDD
[] NAS [] RAID
[]
[]

NAS [] HDD [] PC
[]

- [] :
○ [] : [] NAS []
HDD [] PC [] OS
[]
[]
- [] :
[]
[]
[] PC
[]

4. []

HDD

[]
[]

- [] :
○ HDD [] 50°C [] 55°C
[]
[]
[]
- [] :
○ []
[]
[]
- [] :
○ [] HDD [] 24
[] P2P
[]
[]
- [] **ON/OFF** [] **OS** [] :

-
- Windows OS

24

HDD

5.

- RAID :
SMR
- NAS RAID 24 : CMR NAS

[illegible]

1. S.M.A.R.T.

S.M.A.R.T. Self-Monitoring, Analysis and Reporting Technology

[illegible]

SSD

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- □ □ □ :

[illegible][illegible]

- □ ■ ■

[illegible]

OS

[illegible][illegible]

2. S.M.A.R.T.

Raw Value

--	--	--	--

[illegible]

- ID / : : ID 05:

- [illegible]

-  /  (Normalized Value): 

100□ 200

- (Raw Value):

1



3.

S.M.A.R.T.

S.M.A.R.T.

ID 01:

(Read Error Rate)

- :
- : Seagate HDD

ID 05:

(Reallocated Sectors Count)

- :
- : 0 1

ID 09:

(Power-On Hours)

- :
- :

ID 0A:

(Spin-Up Retry Count)

- **00** :


- **01** :



ID 0C: (Power Cycle Count)

- **00** :  ON 
- **01** :



ID BB: (Reported Uncorrectable Errors)

- **00** :  ECC

- **01** :  1



ID C5: (Current Pending Sector Count)

- **00** :


- **01** : ID 05

 ID 05



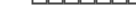
ID C6: (Offline Uncorrectable Sector Count)

- **00** : 
- **01** : ID BB  C5


ID C7: UDMA CRC

--	--	--	--

 (UDMA CRC Error Count)

- **RAID 0** :  **HDD**  **SATA**
- **RAID 1** :  **SATA**

4. S.M.A.R.T.

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-  :
- S.M.A.R.T.
 - 
 - 
 - 
-  :
- S.M.A.R.T.
 - 
 -  CrystalDiskInfo
 - 
 -  S.M.A.R.T. 
 - 3-2-1 

Windows11

HDD

HDD

1.

Windows 11

- : HDD

TRIM
- :

1

SSD

2.

Windows XP 7

Auslogics DiskDefrag Defraggler

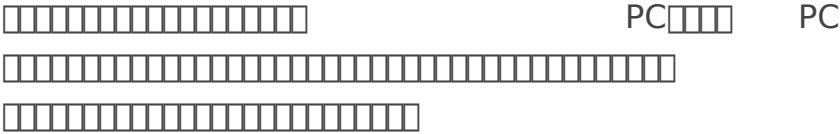
- : HDD OS
- :

3.

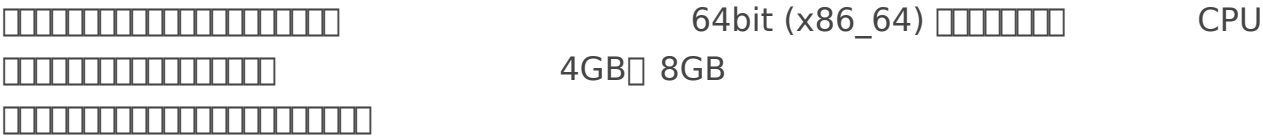
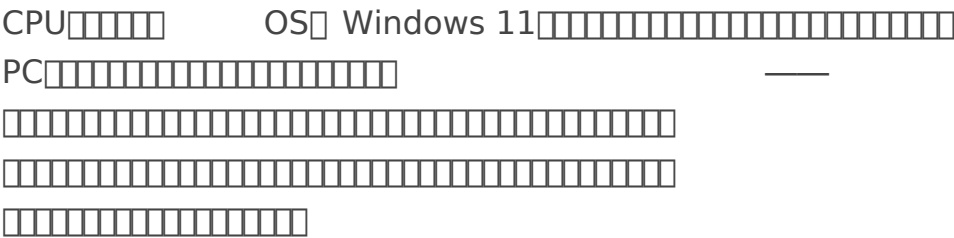
- 

Windows 11

11



1.



- [16 empty square boxes] :
 - 1990 [4 empty square boxes] 2000 [4 empty square boxes] 32bit [4 empty square boxes] CPU
 - [16 empty square boxes] 512MB [4 empty square boxes] 2GB
 - [16 empty square boxes] PC [8 empty square boxes] Linux
 - [8 empty square boxes] Docker [16 empty square boxes] 64bit
 - [16 empty square boxes]
 - [8 empty square boxes]
 - [16 empty square boxes]
 - [16 empty square boxes]
 - [8 empty square boxes]

2. [16 empty square boxes]

PC

- 64bit CPU : 64bit
 -
- :
 - PC CPU
 - 24 365
 - TDP
- : HDD CPU
 - PC S.M.A.R.T.

3. PC

① NAS /

- : HDD LAN
- OS: OpenMediaVault, TrueNAS, Debian / Ubuntu Server (Samba)
- : CPU PC

② Docker /

- : OS Docker Nextcloud AdGuard Home

- **OS:** Ubuntu Server, Debian, Alpine Linux
- : GUI CUI
CPU 100%

③ AI

- : PC NVIDIA GPU : VRAM 16GB RTX 4060 Ti LLM API Ollama
- : OS Windows 11 CPU Intel 7 Windows Linux AI

4.

- 32bit OS

NAS Network Attached Storage



1. NAS Network Attached Storage

NAS Network Attached Storage LAN

- : OS Linux CPU
PC Mac
- **HDD** :
 - **HDD (USB)**: 1 PC
 - **NAS ()**: 24 PC
- :
 - :
SMB/CIFS (Windows), AFP/SMB (Mac), NFS (Linux)
 - OS
 - :
Docker

2. NAS

NAS OS

Synology ()

- 群晖 : 群晖私有云存储系统 OS 为 DSM (DiskStation Manager) 群晖私有云存储系统
- 威联通 : Windows 群晖私有云存储系统 GUI 群晖私有云存储系统 群晖私有云存储系统 群晖私有云存储系统

QNAP (群晖私有云存储系统) 群晖私有云存储系统

- 群晖 : Synology 群晖私有云存储系统 群晖私有云存储系统
- 群晖 : 10GbE 群晖私有云存储系统 M.2 NVMe SSD 群晖私有云存储系统 群晖私有云存储系统 OS 为 QTS 群晖私有云存储系统

ASUSTOR (群晖私有云存储系统)

群晖私有云存储系统

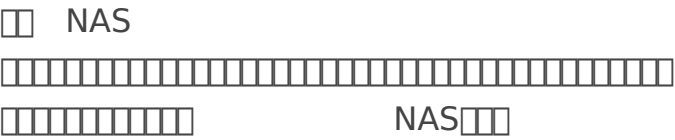
- 群晖 : ASUSTeK 群晖私有云存储系统 群晖私有云存储系统
- 群晖 : 群晖私有云存储系统 群晖私有云存储系统 HDMI 群晖私有云存储系统 群晖私有云存储系统

Buffalo (群晖私有云存储系统 / LinkStation 群晖私有云存储系统 TeraStation)

群晖私有云存储系统

- 群晖 : 群晖私有云存储系统 群晖私有云存储系统 群晖私有云存储系统
- 群晖 : 群晖私有云存储系统 LinkStation 群晖私有云存储系统 群晖私有云存储系统 TeraStation 群晖私有云存储系统

3. 群晖 NAS 群晖私有云存储系统



2. NAS

- : NAS
CPU
- : CPU
- OS : TrueNAS Unraid
OpenMediaVault ZFS Btrfs

3. NAS

- : PC NAS
HDD
- : OS
G

4. NAS OS

- TrueNAS (CORE / SCALE):
 - : ZFS
NAS OS
 - : RAM
- Unraid:
 - : HDD
OS
 - : 1 2 HDD
HDD
Docker
- OpenMediaVault (OMV):

- **OS** : Debian () NAS
- **OS** : OS ()

- **Web** : Web () PC
- **Web** : Web () NAS
- **Web** : Web ()

4. **Linux** (Debian / Ubuntu):

- **OS** : OS () NAS
- **OS** : OS ()
- **OS** : OS () Linux
- **OS** : OS ()

Linux NAS

()

Ubuntu Debian Linux NAS

()

- **Network** :
 - **samba** : Windows SMB/CIFS Mac AFP/SMB
 - **nfs-kernel-server** : Linux Unix NFS
- **RAID** :
 - **mdadm** : Linux RAID RAID 1, 5, 6 HDD
 - **zfsutils-linux** : ZFS Linux
 - **smartmontools** : HDD SSD S.M.A.R.T.
- **Container** :
 - **docker.io** / **docker-compose** : Nextcloud
 - **docker.io** / **docker-compose** : Plex

```

graph LR
    Cockpit[Cockpit] --- Web[Web]
    Web --- Linux[Linux]
    Linux --- CUI[CUI]
    CUI --- CPU[CPU]
    Web --- CUI
    Linux --- CPU

```

[illegible]

-  :
-  **Synology**  NAS


- 
 :
-   **NAS**  **TrueNAS**  **Unraid**  **OpenMediaVault**
 **Linux** 
