PHISON

Phison Company & Product Introduction

2023

CONFIDENTIAL

PHISON

6 Quick Facts About Phison

Experience
20+
Years

2000+
Worldwide patents

80%+
R&D Exp. / OPEX

3600+ HC
70% R&D

6 Priorities
Mobile | Client SSD| Enterprise
Automotive | Industrial | Design Service

$2.04B
2022 Revenue

Note: based on Q4 2022

Hall of Fame

News in 2022
Future of Gaming Starts with Phison

- **Fastest Gen 5**
  E26 up to 13.x GB/s
- **All Day Computing**
  E21T
- **Next-Gen Mobile Gaming**
  E21T BGA
- **High-speed IC**
  PS7101 PCIe Gen5 Redriver
- **Direct Storage**
  I/O+ Technology designed for Gaming

Worldwide #1

Passed Gen5 Interop!

Reviews & Highlights
Customer Awards

- **E18 with Micron B47R**
  Best Performant SSD in the world
- **Kingston KC3000**
  Tom's Hardware Best SSD of 2021
- **Seagate FireCuda 530**
  PC Gamer Hardware: Best SSD of 2021
- **Phison's E26**
  HotHardware's list of Best of CES 2022

  Tom's Hardware Best SSD of CES 2023

Recognitions
Best NAND Storage

- **Best SSD Controller of 2021 & 2022**
  StorageNewsletter
- **3 of 5 Best SSDs of 2023**
  Techwafer
- **Awarded by OPPO**
  Best technology partner
- **Awarded ISO 26262**
  Strengthen automotive position
- **World's first SDA SVP**
  SD Express Card

Product Coverage - More Than You Thought

SSD

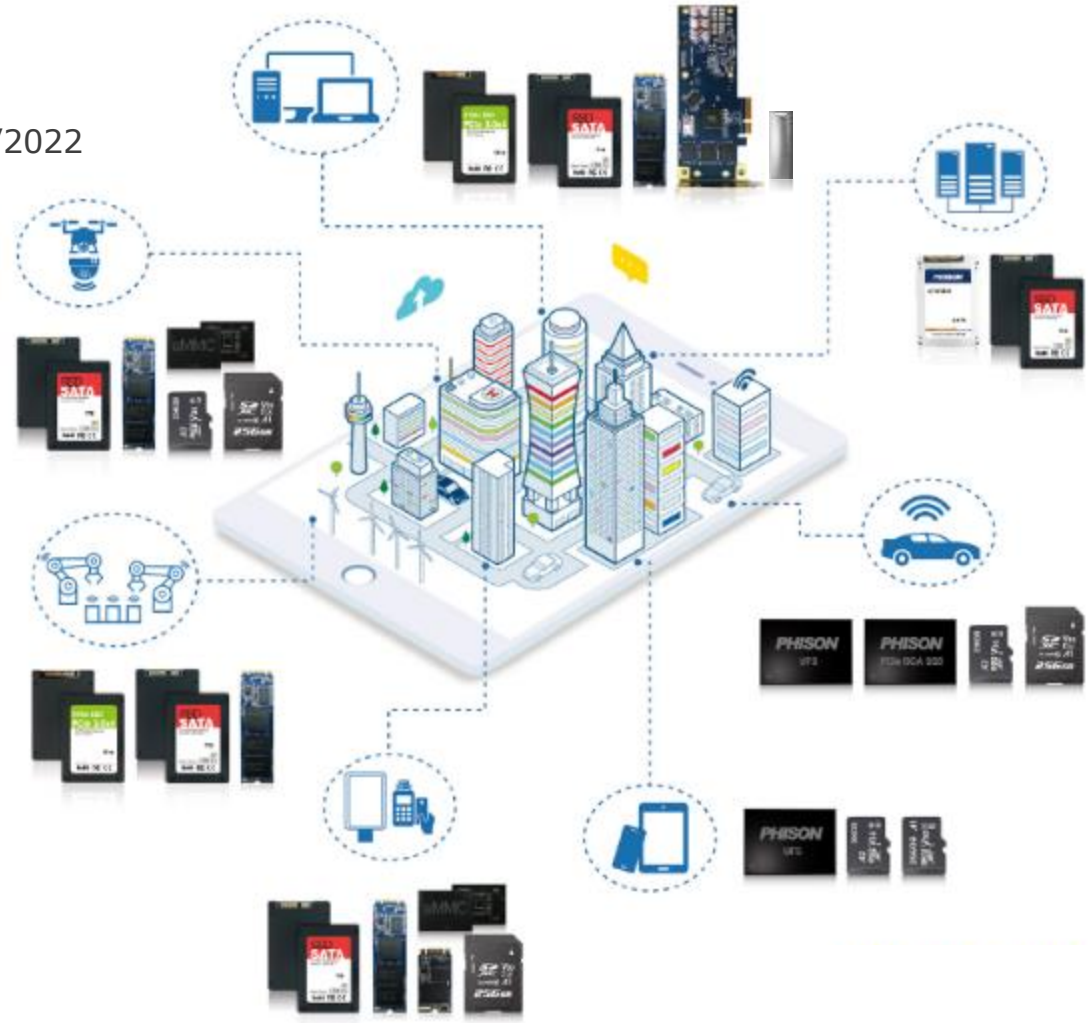
- Worldwide 1st PCIe 4.0/5.0 SSD
- Best SSD controller award for 2021/2022
- Best SSD options for all gaming Platforms
- Embedded/industrial/enterprise /automotive are all covered

eMMC/UFS

- Up to date I/O speed support
- Flexible NAND enabling
- Worldwide #1 automotive eMMC controller provider
- Broad presence in industry giants' AVL

High Speed IC

- PCIe 5.0 redriver/retimer
- Worldwide 1st redriver in PCI-SIG integration list
- Qualified on Intel/AMD platforms
- Millions of units shipped



USB

- Worldwide 1st USB SoC
- Comprehensive USB I/O speed support
- Various product designs for different usages

SD/Micro SD Card

- All SDA standards/SD Express support
- Stable performance for various scenarios
- High endurance for automotive/embedded applications

Why Phison

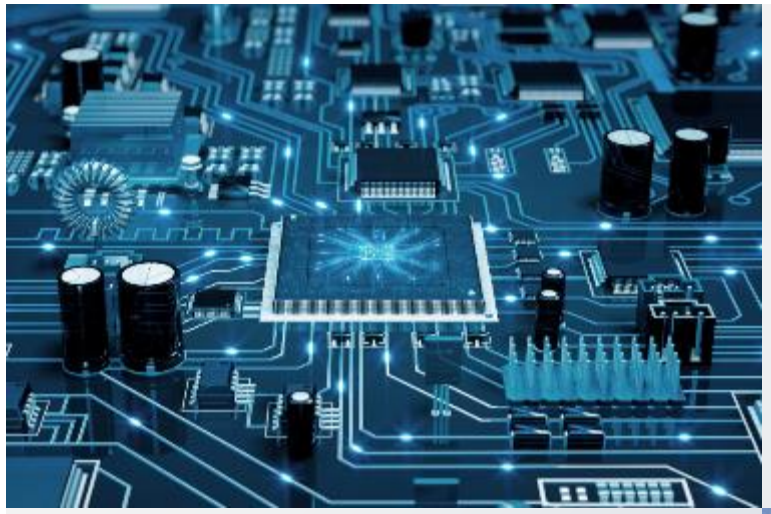
Business Model
Flexible

Technology
Leading

Validation
Rigorous

Ecosystem
Key Player

Flexible in Business

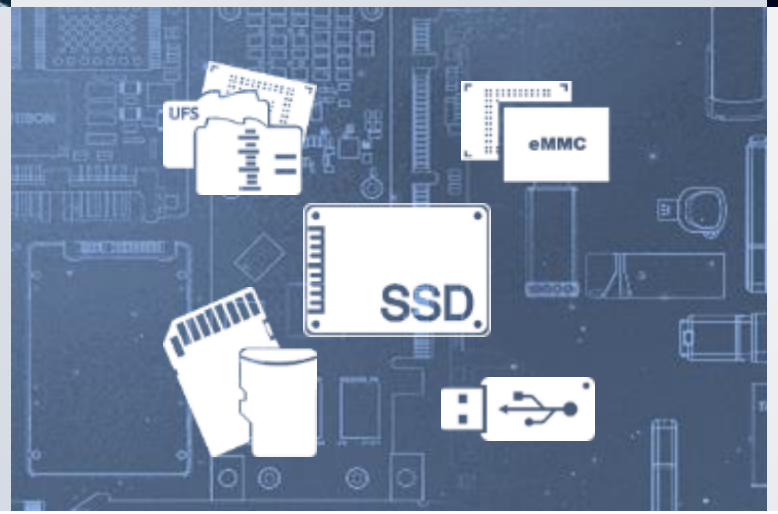


Turnkey Module

- Controller/NAND/DRAM All in One
- Vertical Integration
- System-level Validation
- One-stop Shopping

Controller Delivery

- Best Partner for NAND Semicon
- Design to Support Multiple NANDs
- Sophisticated ASIC Knowledge
- Cutting-edge ECC Design

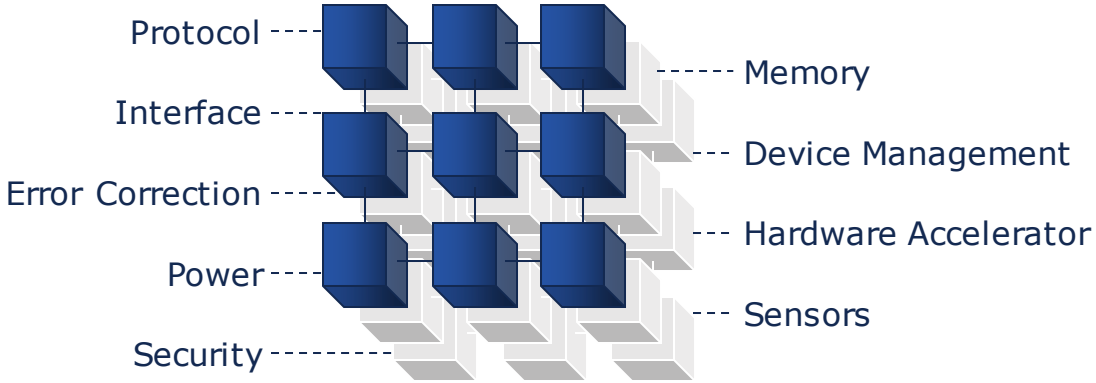


Design Service

- Comprehensive IP License
- TSMC/UMC Process
- Highly Customized
- Software Development Kit

Lead in Technology

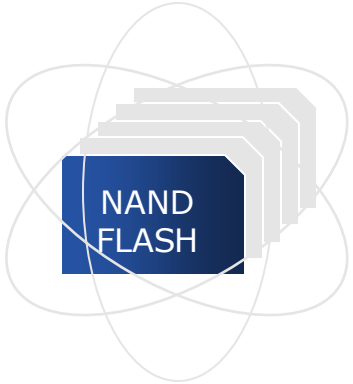
Comprehensive In-house IP Portfolio



- Schedule
- Quality
- Cost
- Customization

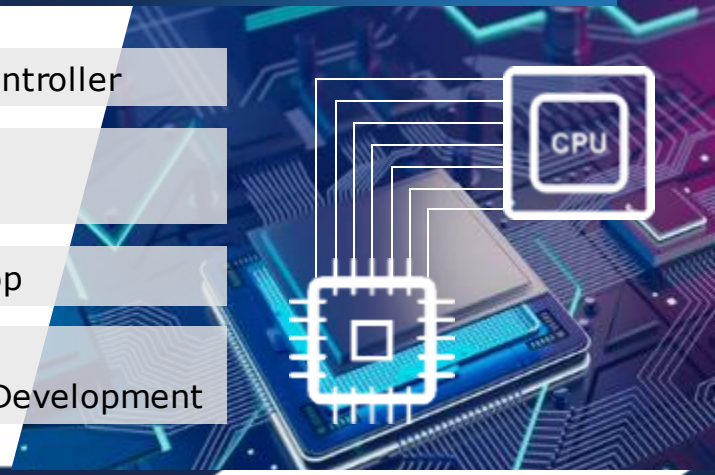
Strong NAND Expertise

- Close and Extensive Partnership with NAND vendors
- NAND Characteristics Control
- Cutting-edge NAND I/F Support
- Early Validation on Various NAND
- Great Flexibility on NAND Support
- Sophisticated NAND ECC Engine Design



Front-end PHY Design Leadership

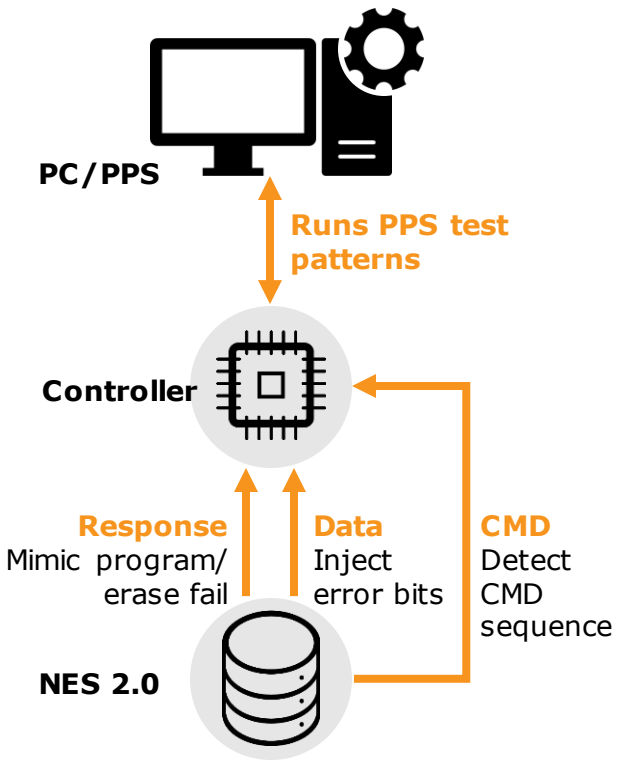
- Worldwide 1st PCIe 4.0 SSD Controller
- Partnership with CPU Maker for PCIe 4.0 Ecosystem Debut
- Key Player in PCI-SIG Workshop
- Early Technology Interlock with CPU Makers for PCIe 5.0 Development



Demanding in Validation

NAND Emulator System

Ensure NAND operations and Shorten Time to Market



Phison Pattern System (PPS)

Robust Validation System

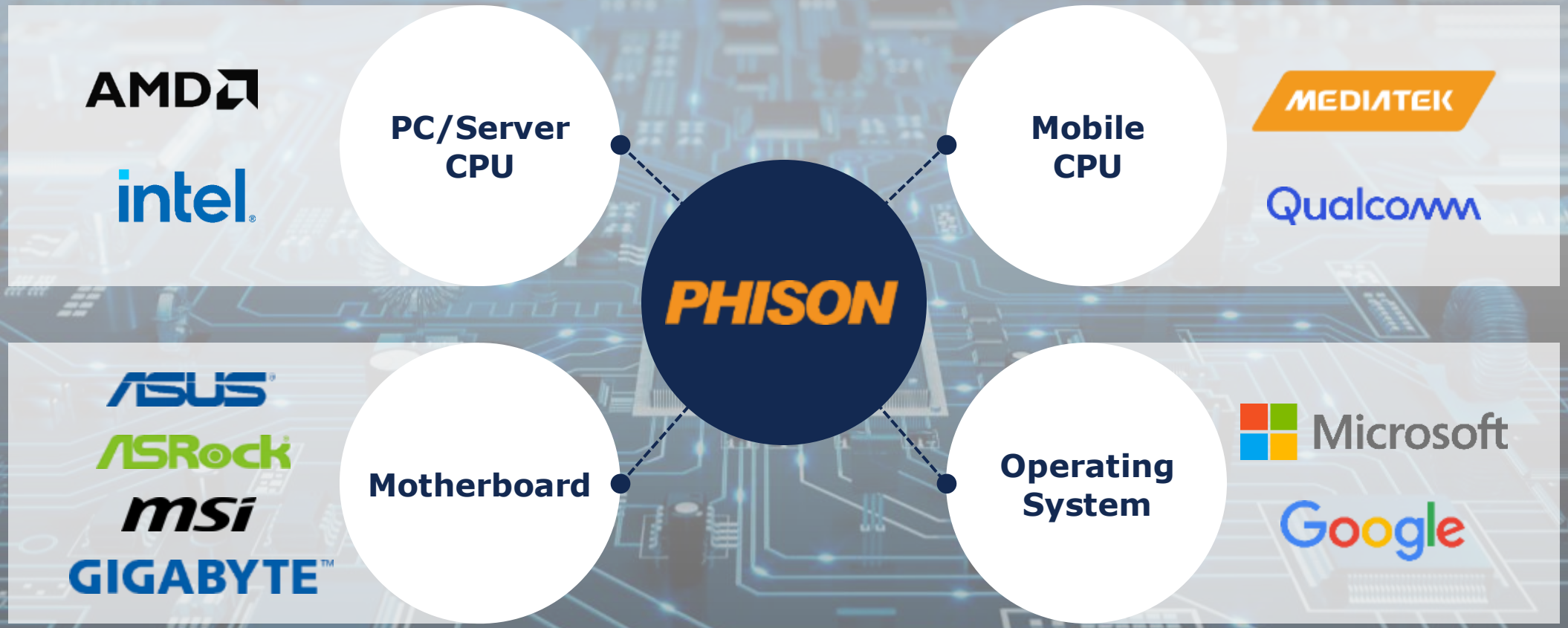
- Garbage Collection
- Customer Request
- JEDEC Spec
- Flash Translation Layer
- Feedback Bugs
- Platform Behavior
- Stress Test
- Data Reliability
- Power Cycling Test

Strong Facility Investment

Make sure compatibility/compliance before shipping

- 4000+ Testing Platforms
- Self-built Chamber for strict environmental tests
- High-speed Signal Lab for signal integrity check including PCIe/MPHY/USB/DDR/ONFi
- Advanced equipment purchase to accelerate product development

Key Player in Ecosystem



Close and comprehensive partnership with industry titans makes Phison unparalleled.
We are able to offer solutions with best interoperability, compliance and user feeling!

Phison - Best Ally for ODM

PC & Gaming

- Notebook
- Desktop
- Tablet
- All-in-one
- Game Console

Mobile & Embedded

- Smartphone
- Wearable
- AR/VR/XR
- IoT/AIoT
- Medical
- 5G Base Station
- Set-top Box

Enterprise

- Server
- Workstation
- NAS
- 5G Core Network

Automotive

- IVI/Cockpit
- ADAS
- TCU
- Various ECU

Commercial Grade

Enterprise Grade

Industrial Grade

Automotive Grade

PHISON

PC & Gaming

Notebook

Desktop

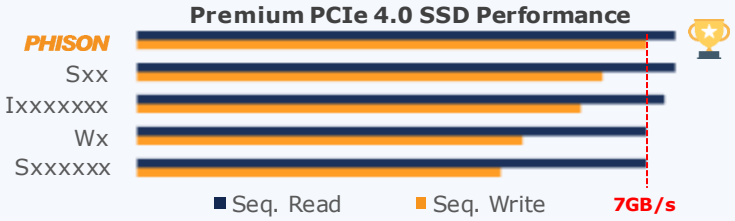
All-in-one

Tablet

Game Console

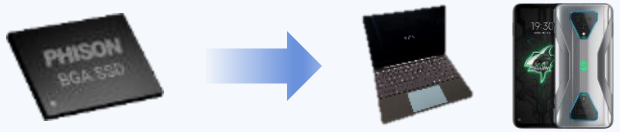
Performance

- ✓ Ultra high transmission speed
- ✓ Super low latency
- ✓ Ultimate user experience



Power Efficiency

- ✓ Optimal power and thermal management
- ✓ All-day computing for mobile devices
- ✓ Offer industry smallest BGA SSD solution with excellent power efficient design for compact devices



Innovation

- ✓ PCIe 4.0/5.0 pioneer
- ✓ Proprietary designed for DirectStorage
- ✓ I/O+ Technology extends benefits to video rendering, machine learning and much more

Ecosystem

- ✓ Strong relationship with CPU/OS giants
- ✓ Great compatibility with all mainstream motherboards
- ✓ Partner with a large number of brands to launch SSD products

intel AMD Google Microsoft

Mobile & Embedded

Smartphone

Wearable

AR/VR/XR

IoT/AIoT

Medical

Set-top Box

5G Base Station

Broad Presence in AVL

- ✓ Qualified for multiple Host Chip
- ✓ In-house compliance check
- ✓ Close relationship with Host Chip vendors

Qualcomm MEDIATEK intel.

All Interfaces Support

eMMC™ UFS SD

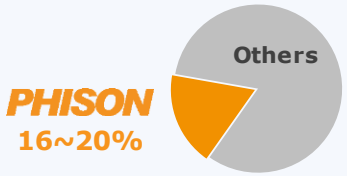
USB SERIAL ATA PCI EXPRESS

Agile NAND Enabling

- ✓ Multiple NAND Flash options
- ✓ Fitting offering to our customers
- ✓ Time to Market

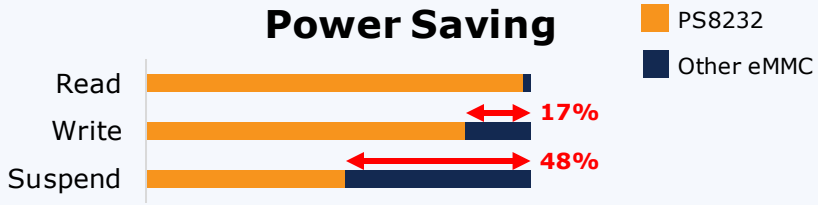
KIOXIA SAMSUNG

eMMC/UFS Market Leader



1 out of 6 devices powered by Phison

Power Saving



Best-in-class energy efficient solution for wearable, IoT, networking, tablet and smartphones

Flexible Customization

- ✓ Wide Capacity Range
- ✓ New Feature Implementation
- ✓ Certification
- ✓ Outstanding Security Capability

Enterprise

Server

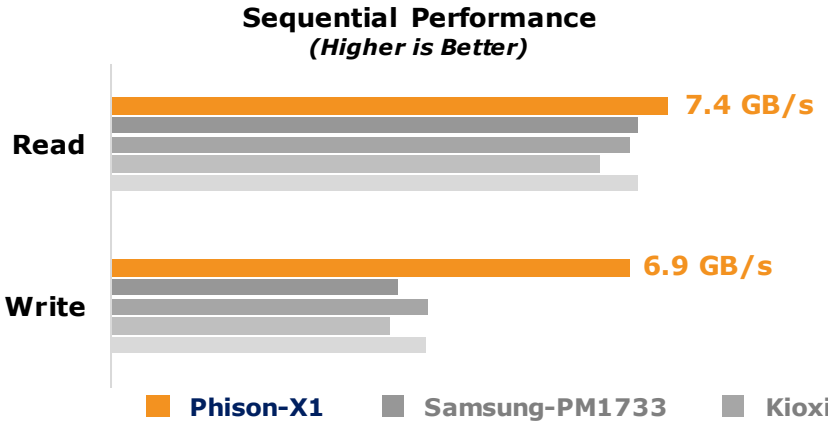
Workstation

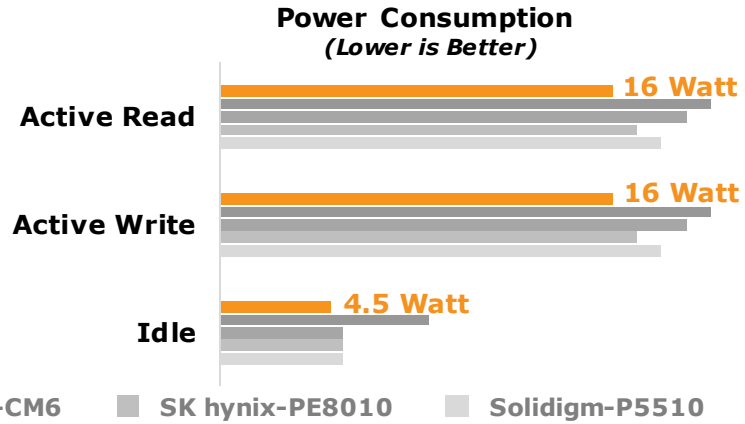
NAS

5G Core Network

PS5020-X1

- **Best-in-Class Performance**
- **Optimized for Low Power**
- **Energy Efficient and Lower TCO**
- **Highly Customized**
- **Wide Temperature**





PHISON Can Do More

Phison's High-Speed Interface IC solves the compatibility problems of high-speed signal transmission between CPU and peripheral devices

Redriver & Retimer

Phison Exclusive Advantages

Phison
Exclusive
Advantages

1 **NAND Expert**
- NAND Makers Partnership
- Multi-NAND Enablement
- Aggressive Schedule

2 **Comprehensive Storage Portfolio**
- Controller Business
- Customized Firmware
- Vertical Integrated Turn-key

3 **More Than Storage**
- PCIe Repeater
- IP Service
- Ecosystem Partners

4 **Technical Support**
- System-level Design Review
- Customization
- On-site Support

Phison - Your Best Partner

Supply

Stability
Solid partnership with various NAND makers

Flexibility
Multiple NAND enablement

Time to Market

Aggressive Schedule
Leading technology, in-house validation, ecosystem partnership

One-stop Shop
Wide range of solution

Fully Support

Technical Support
On-site | Customized FW | Training

Value-added
System-level review & verification

PHISON

THANK YOU!