CD7 Series

KIOXIA

KIOXIA CD7 Series Data Center NVMe SSDs

CD7
BiCS FLASH™
Data Center NVMe™SSD

- **KIOXIA's successor to CD6**
  - **Next generation enterprise and datacenter product**
  - **Improved random write performance**
- **Data Center PCIe® 5.0, NVMe™ 1.4 SSD**
- **960GB to 15360GB in Read Intensive (DWPD 1) and 800GB to 12800GB in Mixed-Use (DWPD 3) endurance models**
- **Form factor: 2.5-inch, 15mm Z-height**
- **Single-port design, optimized for data center class workloads**
- **Power loss protection (PLP) and end-to-end data correction**
- **Consistent performance and reliability in demanding 24/7 environments**
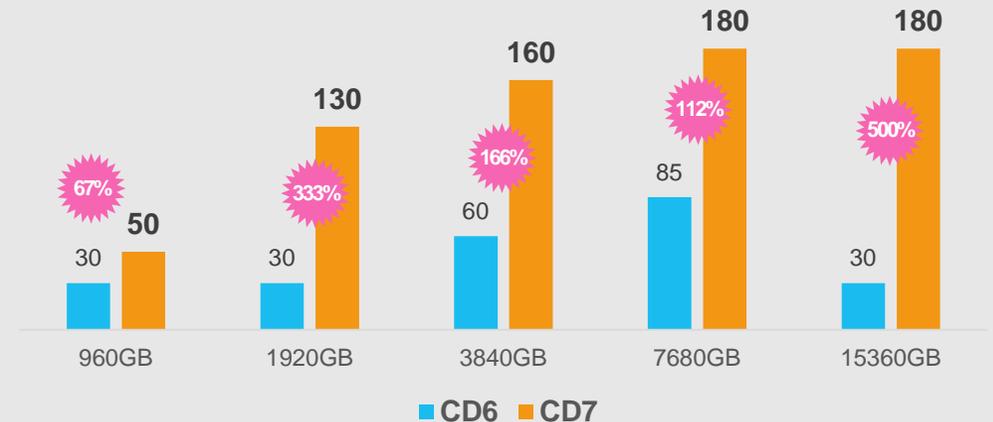- **Six power mode settings**
- **CS Availability: CQ2'21**

Specifications are subject to change

CD7 Preliminary Specifications

Endurance			CD7 (Read-Intensive)				
Endurance	DWPD		1				
Interface*			PCIe Gen5 x4				
User Capacity		GB	960	1920	3840	7680	15360
Sequential Read	128KB(QD32)	MB/s	6400	6700	6700	6700	6700
Sequential Write	128KB(QD32)	MB/s	1600	3000	3000	4500	4500
Random Read	4KB(QD256)	KIOPS	800	1100	1100	1100	1100
Random Write	4KB(QD32)	KIOPS	50	130	160	180	180

*Downward compatible to PCIe Gen4 x4

Random Write Performance Improvement

Capacity	CD6	CD7	Improvement
960GB	30	50	67%
1920GB	30	130	333%
3840GB	60	160	166%
7680GB	85	180	112%
15360GB	30	180	500%

■ CD6 ■ CD7

KIOXIA

Inventor of flash memory
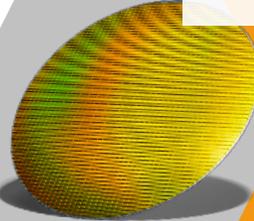
World's largest flash factory

Broadest line of SSDs

Trusted by top 10 server & storage vendors

Flash, storage & software expertise

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CD7 Preliminary Specifications

			CD7 (Mixed-Use)					CD7 (Read-Intensive)				
Endurance		DWPD	3					1				
Interface*			PCIe Gen 5 x4									
User Capacity		GB	800	1600	3200	6400	12800	960	1920	3840	7680	15360
Sequential Read	128KB(QD32)	MB/s	6400	6700	6700	6700	6700	6400	6700	6700	6700	6700
Sequential Write	128KB(QD32)	MB/s	1600	3000	3000	4500	4500	1600	3000	3000	4500	4500
Random Read	4KB(QD256)	KIOPS	800	1100	1100	1100	1100	800	1100	1100	1100	1100
Random Write	4KB(QD32)	KIOPS	120	250	230	300	300	50	130	160	180	180

*Downward compatible to PCIe Gen4 x4

Note: Specifications are subject to change

CD7 Performance (with PCIe Gen 4 platform)

		Unit	CD7				
User Capacity		GB	960	1920	3840	7680	15360
Endurance		DWPD	1				
Sequential Read	128KB(QD 16)	MB/s	6,400	6,700	6,700	6,700	6,700
Sequential Write	128KB(QD 16)	MB/s	1,600	3,000	3,000	4,500	4,500
Random Read	4KB(QD 256)	KIOPS	800	1,100	1,100	1,100	1,100
Random Write	4KB(QD 256)	KIOPS	50	130	160	180	180
Random W30%/R70%	4KB	KIOPS	150	320	370	430	430
Latency (@ QD=1, Aligned, Random 4KiB)							
Read		us(typ.)	90				
Write		us(typ.)	30				

CD7 Performance (with PCIe Gen 3 platform)

		Unit	CD7				
User Capacity		GB	960	1920	3840	7680	15360
Endurance		DWPD	1				
Sequential Read	128KB(QD 16)	MB/s	3,500	3,500	3,500	3,500	3,500
Sequential Write	128KB(QD 16)	MB/s	1,600	3,000	3,000	3,500	3,500
Random Read	4KB(QD 256)	KIOPS	800	850	850	850	850
Random Write	4KB(QD 256)	KIOPS	50	130	160	180	180
Random W30%/R70%	4KB	KIOPS	190	320	350	400	400
Latency (@ QD=1, Aligned, Random 4KiB)							
Read		us(typ.)	90				
Write		us(typ.)	30				

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CD6 vs. CD7 Performance (with PCIe Gen 4 platform)

		Unit	CD6					CD7				
User Capacity		GB	960	1920	3840	7680	15360	960	1920	3840	7680	15360
Endurance		DWPD	1					1				
Sequential Read	128KB(QD 16)	MB/s	5,800	5,800	6,200	6,200	5,500	6,400	6,700	6,700	6,700	6,700
Sequential Write	128KB(QD 16)	MB/s	1,300	1,200	2,400	4,000	4,000	1,600	3,000	3,000	4,500	4,500
Random Read	4KB(QD 256)	KIOPS	700	700	1,000	1,000	750	800	1,100	1,100	1,100	1,100
Random Write	4KB(QD 256)	KIOPS	30	30	60	85	30	50	130	160	180	180
Random W30%/R70%	4KB	KIOPS	30	30	60	85	30	150	320	370	430	430
Latency (@ QD=1, Aligned, Random 4KiB)												
Read		us(typ.)	80		90		110	90				
Write		us(typ.)	35					30				

CD6 vs. CD7 Performance (with PCIe Gen 3 platform)

		Unit	CD6					CD7				
User Capacity		GB	960	1920	3840	7680	15360	960	1920	3840	7680	15360
Endurance		DWPD	1					1				
Sequential Read	128KB(QD 16)	MB/s	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500
Sequential Write	128KB(QD 16)	MB/s	1,300	1,150	2,350	2,300	2,350	1,600	3,000	3,000	3,500	3,500
Random Read	4KB(QD 256)	KIOPS	700	700	770	750	750	800	850	850	850	850
Random Write	4KB(QD 256)	KIOPS	30	30	60	75	30	50	130	160	180	180
Random W30%/R70%	4KB	KIOPS	85	85	160	200	85	190	320	350	400	400
Latency (@ QD=1, Aligned, Random 4KiB)												
Read		us(typ.)	80	90			110	90				
Write		us(typ.)	35					30				

Catalog Spec Comparison Table

	CD7	SS PM9A3[1]	SKH PE8010[2]	Intel P5500[3]
Capacity (GB)	960/1920/3840/7680/15360	Up to 7680	960/1920/3840/7680	1920/3840/7680
Seq.R (MB/s)	6400/6700/6700/6700/6700	Up to 6800	5900/6200/6200/6200	3500/7000/7000
Seq.W (MB/s)	1600/3000/3000/4500/4500	Up to 4000	1400/2800/3650/3650	1700/3500/4300
Rnd.R (KIOPS)	800/1100/1100/1100/1100	Up to 1000	520/850/930/980	400/780/1000
Rnd.W (KIOPS)	50/130/160/180/180	180	69/125/150/150	59/118/130
Power (W)	Up to 25	U. 2: R: 9.4, W: 14.5	Up to 14.4	15/18/20
DWPD	1/5y	1/5y	1.5/3y	1/5y

[1] Samsung website
[2] HPE website (platform specs)
[3] Intel website