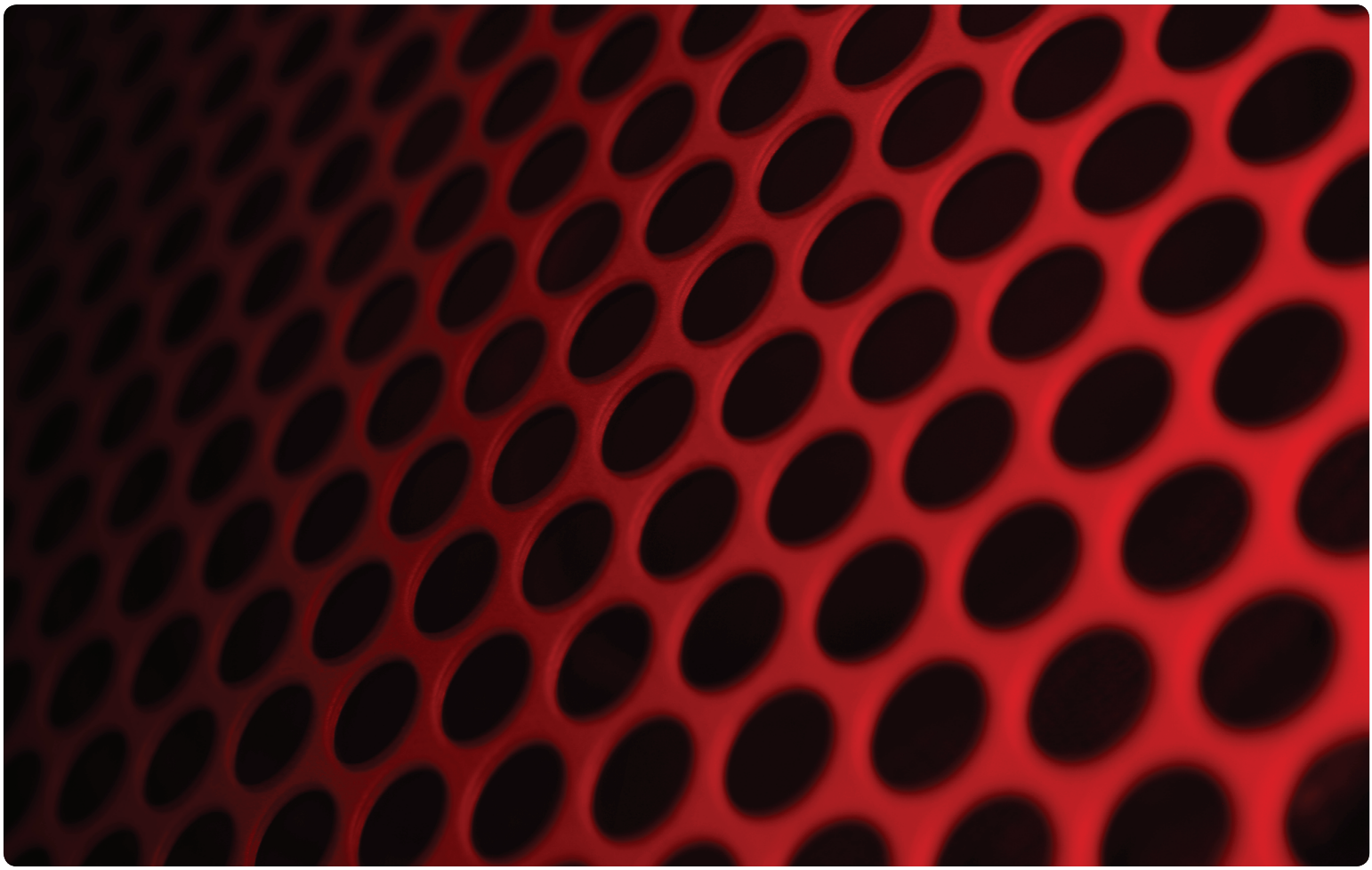
SMART Attribute Details



Kingston TECHNOLOGY

SMART Attribute Details

Provides a detailed description of SMART Attribute support and how each may be used.

Kingston® SHPM2280P2 and SHPM2280P2H SMART Attribute Details

ID	HEX	Attribute Name	Description
1	01h	Read Error Rate	Any retry that causes latency, and errors including ECC on the fly. **Normalized Equation:** 100–MIN(100, (C * (Ec + Eu)) / Hp) Ec = Total number of correctable errors Eu = Total number of uncorrectable errors Hp = Total number of pages read by the host C = 100000(Bt)/ 2 Bt= Total number of blocks on the device The Current Value will not be calculated and remains as Default_Normalized Value until the host read page count is greater than C.
5	05h	Reallocated Sector Count	Count of any event (page or block level) caused by Program/Read operations. **Normalized Equation:** 100 – (100 * reallocated sector count / total amount of spare sectors)
9	09h	Power On Hours	This attribute is used for the hourly count of "power on" including idle and low power states.
12	0Ch	Power Cycle Count	This attribute is used to count power cycles, including sudden power off.
100	64h	Total Erase Count	This attribute is used to count the total number of user area block erasures.
170	AAh	Reserved Block Count	This attribute is used to count the number of reserved blocks used to replace bad blocks.
171	ABh	Program Fail Count	This attribute is used to count the number of NAND program failure events over the life of the drive. **Normalized Equation:** 100-100(Fp/Fp+Br) Fp=Total Program Fail Count Br=number of reserved blocks remaining
172	ACh	Erase Fail Count	This attribute is used to count the number of NAND erase fails over the life of the drive. **Normalized Equation:** 100-100(Ef/Ef+Br) Ef=Total Erase Fail Count Br=number of reserved blocks remaining
174	AEh	Unexpected Power Off Count	Count of power off events without Cache Flush or Meta Data Flush.
175	AFh	Program Fail Count Worst Die	This attribute counts the program failures for the die which has failed the most.

ID	HEX	Attribute Name	Description
176	B0h	Erase Fail Count Worst Die	This attribute counts the erase failures for the die which has failed the most.
177	B1h	Wear Leveling Count	Number of erase/program cycles per block on average. This attribute is intended to be an indicator of imminent wear-out. **Normalized Equation:** 100 – (100 * Average Erase Count / NAND max rated number of erase cycles)
178	B2h	Used Reserved Block Count worst Die	This attribute counts the number of reserved blocks used to replace bad blocks for the worst die.
179	B3h	Reserved Block Count 2	This attribute counts the number of reserved blocks used to replace bad blocks.
180	B4h	Unused Reserved Block Count (SSD Total)	This attribute provides a count of the reserved blocks remaining for the entire drive.
181	B5h	Program Fail Count 2	This attribute is used to count the number of NAND program fails. **Normalized Equation:** 100-(100*Fp/Fp+Br) Fp=Total Program Fail Count Br=number of reserved blocks remaining
182	B6h	Erase Fail Count 2	This attribute is used to count the number of NAND erase fails. **Normalized Equation:** 100-(100*Ef/Ef+Br) Ef=Total Erase Fail Count Br=number of reserved blocks remaining
187	BBh	Reported Uncorrectable Errors	This attribute provides a count of the number of uncorrectable ECC errors reported by the drive.
194	C2h	Temperature	This attribute reports drive temperature. **Raw Value Bytes** [1-0]: Current [3-2]: Min [5-4]: Max
195	C3h	On-the-Fly ECC Uncorrectable Error Count	This attribute provides a count of the On-the-Fly Uncorrectable Error events.
196	C4h	Reallocation Event Count	This attribute provides a count of the number of reallocation events that have taken place on this SSD, regardless of the number of sectors reallocated.
197	C5h	Pending Sector Count	Count of unrecoverable units (page/blocks) based on the recovery scheme.
199	C7h	UDMA CRC Error Count	This attribute provides a count of CRC errors that have occurred on the PCIe interface.

ID	HEX	Attribute Name	Description
201	C9h	Uncorrectable Read Error Rate	This attribute provides the Uncorrectable ECC rate for the current power/reset period.
204	CCh	Soft ECC Correction Rate	This attribute provides the Soft ECC rate for the current power/reset period.
231	E7h	SSD Life Left	This attribute provides an indication of the remaining life of the SSD based on the number of program/erase cycles. **Normalized Equation:** 100 - ((100 * (Average Erase Count / NAND Rated Program/Erase Cycle))
234	EAh	Total Programs	This attribute provides a total count of sectors programmed.
241	F1h	GB Written from Interface	Count of data in GB that is written by the host.
242	F2h	GB Read from Interface	Count of data in GB that is read by the host.
250	FAh	Total Number of NAND Read Retires	This attribute provides a count of read retries performed.