

Data Sheet

# Pipeline HD™

The industry's leading combination of video streaming and low power performance

160 GB, 250 GB, 320 GB, 500 GB and 1 TB • SATA

## Key Features and Benefits

- Eco-friendly and best-in-class power savings enabling the most energy-efficient system designs
- Industry-leading reliability in an always-on environment supports longevity of consumer electronics and low-power applications.
- Designed for cool, quiet, worry-free, 24x7 operations
- Performance enhanced for multimedia streaming applications
- Seagate SoftSonic™ motor technology enables years of ultra-quiet, worry-free operation with acoustics performance as low as 1.9 bels.
- Up to 1-TB capacity enabling up to 200 hours of HD storage or 1000 hours of SD television recording
- Sweet-spot capacities enable premium television services such as video on demand, high-definition storage and multi-room streaming for DVRs and media centers.
- Seagate Think Green™ sustainability goes beyond green with improved reliability, low power consumption, leading recycling programs, RoHS compliance, PVC free, halogen free and brominated flame retardant free



## Best-Fit Applications

- Low-power appliances and devices
- DVR and media center applications
- Entry-level surveillance DVR (SDVR) systems
- Home theater PCs, karaoke and audio jukeboxes
- IPTV set-top boxes

Specifications	1 TB <sup>1</sup>	500 GB <sup>1</sup>	500 GB <sup>1</sup>	320 GB <sup>1</sup>	250 GB <sup>1</sup>	160 GB <sup>1</sup>
Model Number	ST31000424CS ST31000322CS	ST3500414CS ST3500312CS	ST3500321CS	ST3320310CS	ST3250312CS	ST3160310CS
Generation	2	2	1	1	2	1
Head/Disk	4/2	2/1	4/2	2/1	1/1	1/1
Interface Options	SATA 3Gb/s	SATA 3Gb/s	SATA 3Gb/s	SATA 3Gb/s	SATA 3Gb/s	SATA 3Gb/s
<b>Performance</b>						
Cache, Multisegmented (MB)	16, 8	16, 8	8	8	8	8
SATA Data Transfer Modes Supported (Gb/s)	3.0/1.5	3.0/1.5	3.0/1.5	3.0/1.5	3.0/1.5	3.0/1.5
Simultaneous SDTV Streams Supported (Assumes 256K host buffer per stream)	10	10	10	10	10	10
Simultaneous HDTV Streams Supported (Assumes 2-MB host buffer per stream)	10	10	10	10	10	10
Power-On to Ready (typical, sec)	<12	<6	<12	<6	<6	<6
Standby to Ready (typical, sec)	<12	<6	<12	<6	<6	<6
Maximum External Transfer Rate (MB/s)	300	300	300	300	300	300
<b>Voltage</b>						
Voltage Tolerance (including noise)	5V ± 5%, 12V ± 10%	5V ± 5%, 12V ± 10%	5V ± 5%, 12V ± 10%	5V ± 5%, 12V ± 10%	5V ± 5%, 12V ± 10%	5V ± 5%, 12V ± 10%
<b>Environmental</b>						
Halogen Free	Yes	Yes	No	No	Yes	No
Ambient Temperature (°C)						
Operating (ambient min)	0	0	0	0	0	0
Operating (drive case max)	75	75	75	75	75	75
Nonoperating (ambient min)	-40	-40	-40	-40	-40	-40
Nonoperating (ambient max)	70	70	70	70	70	70
Temperature Gradient, Operating/Nonoperating (°C per hour max)	20/30	20/30	20/30	20/30	20/30	20/30
Relative Humidity, Operating/Nonoperating (non-condensing, %)	5 to 90/5 to 95	5 to 90/5 to 95	5 to 90/5 to 95	5 to 90/5 to 95	5 to 90/5 to 95	5 to 90/5 to 95
Web Bulb Temperature, Operating/Nonoperating (°C max)	37.7/40.0	37.7/40.0	37.7/40.0	37.7/40.0	37.7/40.0	37.7/40.0
Shock						
Operating: 2 ms (max, Gs)	70	70	70	70	70	70
Nonoperating: 1 ms (max, Gs)	350	350	300	350	350	350
Vibration, Operating						
5-22 Hz (limited displacement) (Gs)	0.50	0.50	0.25	0.50	0.50	0.25
22-350 Hz (Gs)	0.50	0.50	0.50	0.50	0.50	0.50
350-500 Hz (Gs)	0.25	0.25	0.25	0.25	0.25	0.25
Vibration, Nonoperating						
5-350 Hz (limited displacement) (Gs)	5.00	5.00	5.00	5.00	5.00	5.00
350-500 Hz (Gs)	1.00	1.00	1.00	1.00	1.00	1.00
<b>Power Management</b>						
Startup Current (12 V typical, amps)	2.0	2.0	2.0	2.0	2.0	2.0
Consumer Storage Profile (W)	4.1	3.4	5.0	4.7	3.4	4.7
Idle Average (W)	3.8	3.0	4.3	3.0	3.0	3.0
Standby/Sleep Mode (typical, W)	0.7	0.7	0.7	0.6	0.7	0.57
<b>Acoustics</b>						
PVR Profile (typical/max, bels)	2.1/2.4	1.9/2.0	2.1/2.4	1.9/2.1	1.9/2.0	1.9/2.1
<b>Reliability</b>						
Nonrecoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E14	1 sector per 10E14	1 sector per 10E15	1 sector per 10E14
Annualized Failure Rate (AFR)	0.55%	0.55%	0.57%	0.57%	0.55%	0.57%
Contact Start-Stop Cycles (25°C, 50% relative humidity)	50,000	50,000	50,000	50,000	50,000	50,000
<b>Dimensions</b>						
Height (mm/in, max)	26.1/1.028	20.0/0.795	26.1/1.028	20.0/0.795	20.0/0.795	20.0/0.795
Width (mm/in, max)	101.85/4.010	101.85/4.010	101.85/4.010	101.85/4.010	101.85/4.010	101.85/4.010
Depth (mm/in, max)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb, max)	600/1.323	380/0.838	530/1.168	415/0.915	380/0.838	415/0.915

<sup>1</sup> One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to hard drive capacity.

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