

JEDEC STANDARD

Automotive Solid State Drive (SSD) Device Standard

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JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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AUTOMOTIVE SOLID STATE DRIVE (SSD) DEVICE STANDARD

(From JEDEC Board Ballot JCB-22-49, formulated under the cognizance of the JC-64.8 Subcommittee on Solid State Drives, item number 318.02).

1 Scope

This standard defines the specifications of interface parameters, signaling protocols, environmental requirements, packaging, and other features for a solid state drive (SSD) targeted primarily at automotive applications.

The purpose is to provide a standard for automotive SSD devices for uniformity, multiplicity of sources, elimination of confusion, ease of device specification, and ease of use.

Unless otherwise noted in the document, any illegal operation is not allowed and device operation is not guaranteed.

The designation Automotive SSD refers to the part designation of a series of commercial logic parts common in the industry. This number is normally preceded by a series of manufacturer specific characters to make up a complete part designation. The capacity of the device is typically appended, as well as other key characteristics of the device as documented in this standard.

1.1 Common Features Summary

- 28 x 28 mm application landing pattern, socketless solution.
- BGA package options: 16 x 20 mm, 20 x 24 mm, 22 x 28 mm, and 28 x 28 mm.
- PCIe 4.0 x4 electrical interface for 8 GB/s peak transfer rate.
- NVMe command protocol support.
- Single root I/O virtualization (SR-IOV).
- Device authentication and security.
- Firmware resiliency.
- Operating temperature range: A2T (-40 °C to +105 °C).
- Optional system storage area.

1.2 External References

The JEDEC Automotive SSD specification references a number of external specifications developed by other organizations. In many cases, JEDEC applies additional requirements, limitations, or instantiations to these specifications. These will be indicated throughout this standard. Implementors of Automotive SSD devices or controllers should review these external specifications for details and context as well.

1.3 Device Standard

This standard encompasses a variety of requirements, many of which exist in the industry independently. In some cases, these external specifications are referenced directly without modification. In others, this specification will apply usage models, expansions, or restrictions on these standards to define the intended application.

Title	Chapter	Description
Package	2	This clause describes the package and pin assignments for the Automotive SSD.
Electrical	3	This clause defines the electrical interface.
Protocol	4	This clause defines the command interface protocol supported for the Automotive SSD.
Capacity	5	This clause defines the options for device storage capacity.
Security	6	This clause defines the security, device authentication, and key management aspects of the Automotive SSD.
System	7	This clause describes the system requirements for using Automotive SSD devices.
Endurance	8	This clause describes the required Automotive SSD device endurance characteristics.
Environmental	9	This clause defines the environmental characteristics including temperature, humidity, shock, and vibration.