SYSTEM VALIDATION REQUIREMENTS CHECKLIST

Mini-ITX and Embedded Computing Platform Projects

Use this checklist to define the configuration, operating conditions, validation scope, acceptance criteria, and required evidence before project-specific engineering validation begins.

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Document Type	Validation Requirements Checklist
Applicable Scope	Mini-ITX and embedded computing platform projects
Status	Public / Customer Input Template

1. Project Identification

Customer / Organization	
Project Name / Reference	
Application / Deployment	
Primary Contact	
Target Validation Date	
Required Delivery Date	
Prepared By	
Reviewed By	

2. Validation Basis

Validation should be performed against the confirmed project configuration. Requirements not selected or not defined in this checklist should not be assumed to be part of the validation scope.

Validation Objective	
Reference Platform / Board	
Expected Production Configuration	
Applicable Customer Specification	
Applicable Drawing / Document Revision	

3. System Configuration

3.1 Core Hardware

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes

[ ]	Processor / SoC model and power profile		
[ ]	Memory capacity, type, speed, and module configuration		
[ ]	Storage device type, interface, capacity, and exact model where relevant		
[ ]	Chipset / platform controller where applicable		
[ ]	Discrete GPU, accelerator, or AI module		
[ ]	TPM / security device where required		

3.2 Firmware and Software

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	BIOS / UEFI version		
[ ]	Required BIOS settings		
[ ]	Operating system and exact version / build		
[ ]	Kernel version where applicable		
[ ]	Required driver versions		
[ ]	Project application or workload version		
[ ]	Watchdog / auto power-on / boot behavior		

3.3 Expansion and Peripherals

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	M.2 module(s)		
[ ]	PCIe expansion card(s)		
[ ]	Wi-Fi / Bluetooth module		
[ ]	LTE / 5G cellular module		
[ ]	External USB peripherals		
[ ]	Display(s) and interface type		
[ ]	Other project-specific peripherals		

4. Power Requirements

Nominal Input Voltage	
Required Input Range	
Power Supply Model / Rating	
Connector Type	
Maximum Expected Load	
Power Recovery Requirement	

4.1 Power Validation Scope

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	Cold boot at nominal input		
[ ]	Warm reboot		
[ ]	Repeated power cycling		
[ ]	Low input condition		
[ ]	High input condition		
[ ]	Boot with full peripheral load		
[ ]	Sustained operation under high system load		
[ ]	Auto power-on after AC / DC recovery		
[ ]	Unexpected reset or shutdown monitoring		

5. Thermal and Environmental Requirements

Target Ambient Temperature	
Minimum Ambient Temperature	
Maximum Ambient Temperature	
Cooling Method	[ ] Passive [ ] Active [ ] Enclosure-assisted
Enclosure	[ ] Open Bench [ ] Prototype [ ] Final Enclosure
System Orientation	
Required Test Duration	

5.1 Thermal Validation Scope

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	CPU sustained workload		
[ ]	GPU / AI accelerator workload		
[ ]	Memory stress		
[ ]	Storage activity		
[ ]	Network traffic		
[ ]	Combined system workload		
[ ]	Temperature logging		
[ ]	Thermal throttling observation		
[ ]	Unexpected shutdown / instability monitoring		
[ ]	Post-test inspection		

6. I/O and Interface Requirements

6.1 Interface Validation Scope

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	Ethernet - port count, controller, link speed, traffic requirement		
[ ]	USB - type, count, speed, connected peripherals		
[ ]	COM / serial - RS-232 / RS-422 / RS-485 mode and baud rate		
[ ]	HDMI / DisplayPort - resolution and display count		
[ ]	LVDS / eDP - panel model and timing		
[ ]	Audio - required input / output functions		
[ ]	SATA - device and interface requirement		
[ ]	M.2 - key type, interface, and module		
[ ]	PCIe - lane requirement and expansion card		
[ ]	GPIO - required signals and states		
[ ]	CAN - channel count, bitrate, transceiver requirement		
[ ]	Wi-Fi / Bluetooth - module and functional requirement		
[ ]	Cellular - modem, SIM, antenna, and network requirement		

7. Mechanical Integration Requirements

7.1 Mechanical Checks

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	Board dimensions verified		
[ ]	Mounting-hole locations verified		
[ ]	Rear I/O connector alignment		
[ ]	Internal connector access		
[ ]	Memory clearance		
[ ]	Storage clearance		
[ ]	Heatsink / fan clearance		
[ ]	Expansion card clearance		
[ ]	Cable routing		
[ ]	Final enclosure fit		
[ ]	Mechanical drawing revision		

	recorded		

8. Extended Runtime / Burn-In Requirements

Required Duration	
Workload	
Restart / Cycle Requirement	
Error Logging Requirement	
Pass Criteria	

9. EMC Pre-Compliance Requirements

9.1 Screening Scope

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	Radiated emissions screening		
[ ]	Conducted emissions screening		
[ ]	ESD screening		
[ ]	EFT screening		
[ ]	Surge screening		
[ ]	Grounding / shielding review		
[ ]	Cable configuration review		

Note: EMC pre-compliance screening is not formal product certification. Final compliance depends on the applicable standard, final enclosure, power supply, cables, accessories, market, laboratory, and certification route.

10. Acceptance Criteria

Validation Item	Acceptance Criterion	Result Category	Comments / Limit
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	
		PASS / REVISE / RETEST / N/A	

11. Required Validation Evidence

11.1 Requested Outputs

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	Completed validation checklist		
[ ]	Configuration record		
[ ]	Power measurement table		
[ ]	Temperature log		
[ ]	Thermal screenshot / graph		
[ ]	I/O functional checklist		
[ ]	BIOS configuration record		
[ ]	Operating system / driver record		
[ ]	Photographs		
[ ]	Test equipment record		
[ ]	Error log		
[ ]	Engineering change record		
[ ]	Retest record		
[ ]	Redacted public summary where approved		

12. Revalidation Triggers

12.1 Changes Requiring Review

Select	Requirement / Check	Project Requirement / Acceptance Criteria	Notes
[ ]	PCB revision change		
[ ]	Processor / SoC change		
[ ]	Memory change		
[ ]	Storage device change		
[ ]	BIOS / firmware change		
[ ]	Operating system or driver change		
[ ]	Power supply change		
[ ]	Heatsink / cooling change		
[ ]	Enclosure change		
[ ]	Expansion module change		
[ ]	Ambient requirement change		
[ ]	Application workload change		

13. Special Requirements / Constraints

Customer-Specific Requirement:

_____
_____

Known Constraint:

_____
_____

Excluded Test Item:

_____
_____

Confidentiality / NDA Requirement:

_____
_____

Other Notes:

_____
_____

14. Approval

Customer / Project Representative	
Date	
Engineering Representative	
Date	
Approved Validation Scope	[ ] Approved [ ] Revise and Resubmit

15. Revision History

Revision	Date	Description	Approved By
Rev 1.0	July 2026	Initial public release	

Document Control Statement

This checklist defines project validation requirements and requested evidence. Completion of the checklist does not constitute product certification or guarantee suitability for conditions outside the confirmed scope. Project-specific validation results apply only to the recorded configuration and test conditions.