THERMAL & POWER VALIDATION SUMMARY

X9-FNLS / Intel Processor N95 - Public Redacted Engineering Record

This controlled summary uses product and test conditions currently published by MiniITXBoard together with Intel's official processor specification. It does not invent undisclosed laboratory measurements. Raw temperature logs, current traces, equipment IDs, and internal approval records are not publicly available in the source material and are identified as not publicly disclosed.

Document ID	MIB-EV-RPT-001
Revision	Rev 1.1
Issue Date	July 2026
Platform	X9-FNLS
Processor	Intel Processor N95
Public Test Basis	+60°C ambient, full load, over 8 hours (site-published platform test condition)
Power Test Basis	High-I/O and startup-load power stress testing (site-published statement)
Disclosure Status	Public redacted summary; raw laboratory logs not included

1. Configuration Under Review

Item	Published Configuration	Source Basis
Processor	Intel Processor N95; 4 cores / 4 threads; up to 3.40 GHz; 15 W TDP	Intel official specification
Processor architecture	Products formerly Alder Lake-N	Intel official specification
Memory	1 x DDR4 SO-DIMM; platform page states up to 16 GB	MiniITXBoard published specification
Storage	1 x M.2 2280 NVMe SSD; optional 1 x SATA	MiniITXBoard published specification
USB	6 x USB (4 rear, 2 internal)	MiniITXBoard published specification
Display	2 x HDMI	MiniITXBoard published specification
Serial I/O	2 x RS-232 COM	MiniITXBoard published specification
Ethernet	Dual LAN (1 x Realtek GbE + optional Intel controller)	MiniITXBoard published specification
DC input	12 V ±10%	MiniITXBoard published specification
Published operating range	0°C to +60°C	MiniITXBoard published specification
Firmware features	Watchdog and auto power-on	MiniITXBoard published specification

2. Published Thermal Validation Condition

Ambient condition	+60°C ambient
System load	Full load
Duration	More than 8 hours
Cooling context	Platform family described for passive / fanless deployment
Measured CPU temperature	Not disclosed in public record
Measured board temperature	Not disclosed in public record

Thermal throttling log	Not disclosed in public record
Raw thermal curve	Not disclosed in public record

Interpretation: the published claim establishes the stated ambient, workload, and minimum duration. It does not provide enough public evidence to reconstruct a component temperature curve or to assign a measured junction-temperature margin. Those values should only be added from the original test log.

3. Published Power Validation Condition

Nominal board input	12 V DC
Specified tolerance	±10% (10.8 V to 13.2 V)
Published stress condition	High-I/O and startup-load power stress testing
Input current trace	Not disclosed in public record
Peak startup current	Not disclosed in public record
Power-supply model	Not disclosed in public record
Brownout / transient waveform	Not disclosed in public record

4. Verification Matrix

ID	Verification Point	Public Evidence	Status
THM-01	Ambient test condition	+60°C ambient published	CONFIRMED - published condition
THM-02	Sustained workload	Full load published	CONFIRMED - published condition
THM-03	Duration	Over 8 hours published	CONFIRMED - published condition
THM-04	Measured component temperatures	No raw values publicly disclosed	INTERNAL RECORD REQUIRED
PWR-01	Nominal DC input	12 V ±10% published for X9-FNLS	CONFIRMED - published specification
PWR-02	Startup/high-I/O stress	Power stress statement published	CONFIRMED - published test statement
PWR-03	Current / voltage waveform	No raw trace publicly disclosed	INTERNAL RECORD REQUIRED

5. Processor Reference Limits

Intel Processor N95 total cores / threads	4 / 4
Maximum turbo frequency	3.40 GHz
TDP	15 W
Maximum memory size	16 GB, dependent on memory type
Supported memory types	DDR4-3200, DDR5-4800, LPDDR5-4800
Tjunction / maximum operating temperature	105°C

The processor limits above are Intel component specifications. They are not measured board temperatures and must not be presented as validation results.

6. Evidence Traceability

Evidence ID	Evidence Description	Public Availability

PUB-MIB-PS-01	MiniITXBoard Product Specifications: X9-FNLS configuration and 12 V ±10%, 0-60°C	Public
PUB-MIB-THM-01	MiniITXBoard Product Specifications: +60°C ambient, full load, >8 h platform test statement	Public
PUB-MIB-PWR-01	MiniITXBoard Product Specifications: high-I/O/startup power stress statement	Public
EXT-INTEL-N95-01	Intel Processor N95 official specification	Public
INT-THERM-LOG	Original thermal log / curve	Not public - required for full lab report
INT-PWR-LOG	Original input-current / voltage trace	Not public - required for full lab report

7. Result Statement

Publicly documented evidence supports the following limited statement: X9-FNLS is specified for 12 V ±10% input and a published 0°C to +60°C operating range. MiniITXBoard also publishes a platform-level statement that its platforms were tested at +60°C ambient under full load for more than 8 hours, and that boards undergo power stress testing under high-I/O and startup loads. The public source does not disclose the raw measurements needed for an independent reconstruction of thermal margin, current profile, or pass/fail calculations.

8. Publication Limitation

- Do not add CPU temperature, board temperature, current, wattage, or ripple values unless they come from an original test record.
- Do not use Intel Tjunction = 105°C as though it were a measured board result.
- The site-published test statement should be replaced by the original report ID when the internal validation archive is available.
- Any change to enclosure, heatsink, storage, memory, BIOS, power supply, or peripheral load may require revalidation.

9. Source Record

MiniITXBoard Product Specifications	https://www.miniitxboard.com/product-specifications/
Intel Processor N95 Specification	https://www.intel.com/content/www/us/en/products/sku/231800/intel-processor-n95-6m-cache-up-to-3-40-ghz/specifications.html
Source review date	July 28, 2026

10. Revision History

Revision	Date	Description	Approved By
Rev 1.1	July 2026	Replaced placeholders with traceable public specifications and published test conditions	