



Intel Atom® x7000 Processor Series, Intel® Processor N Series, Intel® Core™ i3-N305 Processor, & Intel® Core™ 3 Processor N355 for Edge Applications

Specification Update Addendum – Public

***April 2025
Revision 1.6***



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Revision History

Date	Revision	Description
April 2025	1.6	- Updated “Intel Atom® x7000 Processor Series, Intel® Processor N Series, Intel® Core™ i3-N305 Processor, & Intel® Core™ 3 Processor N355 for Edge Applications”. - Updated “Intel® Processor and Intel® Core™ i3 N-series” to “Intel® Processor and Intel® Core™ i3 and Intel® Core™ i3 N-series”. - Updated Related Documents. - Added Note 9 to Table 1. - Added Table 4.
October 2024	1.5	- Updated “Intel Atom® x7000 Processor Series, Intel® Processor N Series, & Intel® Core™ i3 N305 Processor for Network & Edge Applications” throughout the document. - Updated Table 9. - Updated Documentation Changes.
May 2024	1.4	- Updated “Intel Atom® x7000 Processor Series, Intel® Processor N-Series, & Intel® Core™ i3-N305 Processor for Network & Edge Applications” throughout the document. - Updated Related Documents. - Updated Identification Information by adding Notes 7 and 8. - Updated Table 9. - Updated Documentation Changes.
March 2024	1.3	- Updated title. - Added Table 5. - Updated Specification Clarifications.
October 2023	1.2	Updated all instances of IoT to Network & Edge.
June 2023	1.1	Updated Specification Clarifications.
February 2023	1.0	Initial release.

1.0 Preface and Nomenclature

This addendum is a supplement to Intel® Processor and Intel® Core™ i3 and Intel® Core™ i3 N-series Specification Update [Document number: 764616]. This document provides a compilation of device and document errata, specification clarifications, and changes for Edge Applications of the following:

- Intel Atom® x7000 processor series
- Intel® Processor N50, N97, N150, N200, and N250
- Intel® Core™ i3-N305 processor and Intel® Core™ 3 processor N355

This document is intended for hardware system manufacturers and for software developers of applications, operating system, and tools. Information types defined in the Nomenclature section of this document are consolidated into this updated document and are no longer published in other documents. This document may also contain information that has not been previously published.

1.1 Related Documents

Document Title	Document Number
Intel® Processor and Intel® Core™ i3 and Intel® Core™ 3 N-series Specification Update	764616
Intel Atom® x7000 Processor Series, Intel® Processor N Series, Intel® Core™ i3-N305 Processor, & Intel® Core™ 3 Processor N355 for Edge Applications - Datasheet Addendum	767454

1.2 Nomenclature

Errata are the design defects or errors. These may cause the processor's behavior to deviate from published specifications. Hardware and software designed to be used with any given stepping must assume that all errata documented for that stepping are present on all devices.

S-Spec Number is a five-digit code used to identify products. Products are differentiated by their unique characteristics, that is, core speed, L2 cache size, and package type as described in the processor identification information table. Read all notes associated with each S-Spec number.

Specification Changes are modifications to the current published specifications. These changes will be incorporated in any new release of the specification.

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Specification Clarifications describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in any new release of the specification.

Documentation Changes include typos, errors, or omissions from the current published specifications. These changes will be incorporated in any new release of the specification.

Note: Errata will remain in the specification update throughout the product's lifecycle, or until a particular stepping is no longer commercially available. Under these circumstances, the errata removed from the specification update is archived and available upon request. Specification changes, specification clarifications, and documentation changes are removed from the specification update when the appropriate changes are made to the appropriate product specification or user documentation (datasheets, manuals, and so on).

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2.0 Identification Information

The processor can be identified by the register contents in [Table 1](#).

When EAX is initialized to a value of 1, the CPUID instruction returns the Extended Family, Extended Model, Processor Type, Family Code, Model Number, and Stepping ID in the EAX register.

The EDX Processor signature value after reset is equivalent to the Processor signature output value in the EAX register.

Table 1. Component Identification via Programming Interface

Reserved	Extended Family ¹	Extended Model ²	Reserved	Processor Type ³	Family Code ⁴	Model Number ⁵	Stepping ID ⁶
31:28	27:20	19:16	15:14	13:12	11:8	7:4	3:0
0x0	0x00	0xB	0x0		0x6	0xE	N0: 0x0

NOTES:

1. The Extended Family, bits [27:20] are used in conjunction with the Family Code, specified in bits [11:8], to indicate whether the Processor belongs to the Intel 386®, Intel 486®, Pentium®, Pentium® Pro, Pentium® 4, or Intel® Core™ processor family.
2. The Extended Model, bits [19:16] in conjunction with the Model Number, specified in bits [7:4], are used to identify the model of the Processor within the Processor family.
3. The Processor Type, specified in bits [13:12] indicates whether the Processor is an original OEM Processor, an OverDrive Processor, or a dual Processor (capable of being used in a dual Processor system).
4. The Family Code corresponds to bits [11:8] of the EDX register after RESET, bits [11:8] of the EAX register after the CPUID instruction is executed with a 1 in the EAX register, and the generation field of the Device ID register accessible through Boundary Scan.
5. The Model Number corresponds to bits [7:4] of the EDX register after RESET, bits [7:4] of the EAX register after the CPUID instruction is executed with 1 in the EAX register, and the model field of the Device ID register accessible through Boundary Scan.
6. The Stepping ID in bits [3:0] indicates the revision number of that model. Refer to [Table 2](#), [Table 3](#), & [Table 4](#) for the Processor stepping ID number in the CPUID information.
7. Intel Atom® x7000E processor series, Intel® processor N50, N97, N200, and Intel® Core™ i3-N305 processor have a Platform ID (MSR 0x17) value of 0x0.
8. Intel Atom® x7000RE & x7000C processor series have a Platform ID (MSR 0x17) value of 0x4.
9. Intel® Processor N150, N250, and Intel® Core™ 3 processor N355 have a Platform ID (MSR 0x17) value of 0x3.

Table 2. Intel Atom® x7000E Processor Series, Intel® Processor N Series, & Intel® Core™ i3-N305 Processor Line

S-Spec Number	Processor Number	Stepping	CPUID	Cache Size (MB)	Functional Core	Functional Execution Units [EUs]	LFM Graphics Frequency (GHz)	Processor Graphics Max Frequency (GHz)	DDR4 Memory (MT/s)	DDR5 Memory (MT/s)	LPDDR5 Memory (MT/s)	Processor Base Core Frequency (GHz)	Max Burst Frequency (GHz)	Processor Base Power [TDP] (W)	Slot/Socket Type
SRMDP	N50	N0	0xB06E0	6	2	16	0.2	0.75	3200	4800	4800	1	3.4	6	BGA 1264
SRMLM	N97	N0	0xB06E0	6	4	24	0.2	1.2	3200	4800	4800	2	3.6	12	BGA 1264
SRMDN	N200	N0	0xB06E0	6	4	32	0.2	0.75	3200	4800	4800	1	3.7	6	BGA 1264
SRMDQ	i3-N305	N0	0xB06E0	6	8	32	0.2	1.25	3200	4800	4800	1.8	3.8	15	BGA 1264
SRMLP	x7211E	N0	0xB06E0	6	2	16	0.2	1	3200	4800	4800	1	3.2	6	BGA 1264
SRMLN	x7425E	N0	0xB06E0	6	4	24	0.2	1	3200	4800	4800	1.5	3.4	12	BGA 1264
SRMLQ	x7213E	N0	0xB06E0	6	2	16	0.2	1	3200	4800	4800	1.7	3.2	10	BGA 1264

Table 3. Intel Atom® x7000RE & x7000C Processor Series

S-Spec Number	Processor Number	Stepping	CPUID	Cache Size (MB)	Functional Core	Functional Execution Units [EUs]	LFM Graphics Frequency (GHz)	Processor Graphics Max Frequency (GHz)	DDR4 Memory (MT/s)	DDR5 Memory (MT/s)	LPDDR5 Memory (MT/s)	Processor Base Core Frequency (GHz)	Max Burst Frequency (GHz)	Processor Base Power [TDP] (W)	Slot/Socket Type
SRNET	x7211RE	N0	0xB06E0	6	2	16	0.2	0.8	3200	4800	4800	1.0	3.2	6	BGA 1264
SRNEP	x7213RE	N0	0xB06E0	6	2	16	0.2	0.8	3200	4800	4800	2.0	3.4	9	BGA 1264
SRNEQ	x7433RE	N0	0xB06E0	6	4	32	0.2	0.8	3200	4800	4800	1.5	3.4	9	BGA 1264
SRNER	x7835RE	N0	0xB06E0	6	8	32	0.2	1.0	3200	4800	4800	1.3	3.6	12	BGA 1264
SRNES	x7203C	N0	0xB06E0	6	2	N/A	N/A	N/A	3200	4800	4800	2.0	3.2	9	BGA 1264
SRNEM	x7405C	N0	0xB06E0	6	4	N/A	N/A	N/A	3200	4800	4800	2.2	3.4	12	BGA 1264
SRNEN	x7809C	N0	0xB06E0	6	8	N/A	N/A	N/A	3200	4800	4800	2.4	3.6	25	BGA 1264

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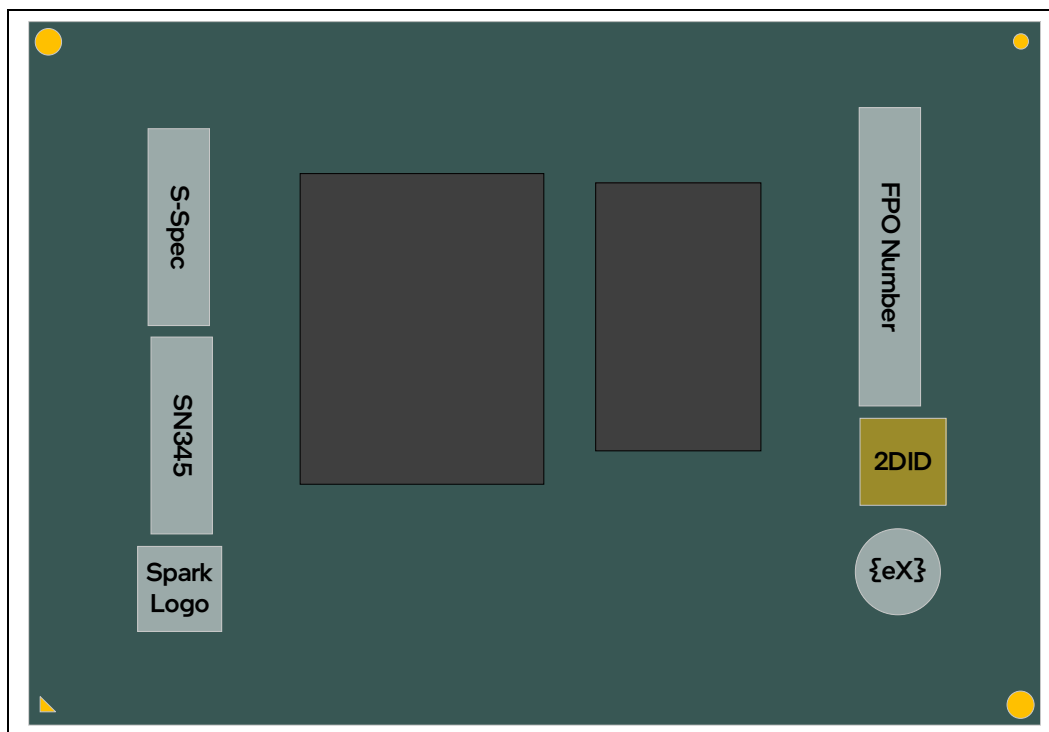
Table 4. Intel® Processor N150, N250, & Intel® Core™ 3 Processor N355 Line

S-Spec Number	Processor Number	Stepping	CPUID	Cache Size (MB)	Functional Core	Functional Execution Units [EUs]	LFM Graphics Frequency (GHz)	Processor Graphics Max Frequency (GHz)	DDR4 Memory (MT/s)	DDR5 Memory (MT/s)	LPDDR5 Memory (MT/s)	Processor Base Core Frequency (GHz)	Max Burst Frequency (GHz)	Processor Base Power [TDP] (W)	Slot/Socket Type
SRPNR	N150	N0	0xB06E0	6	4	24	0.2	1	3200	4800	4800	0.8	3.6	6	BGA 1264
SRPNS	N250	N0	0xB06E0	6	4	32	0.2	1.25	3200	4800	4800	1.3	3.8	6	BGA 1264
SRPNT	³ N355	N0	0xB06E0	6	8	32	0.2	1.35	3200	4800	4800	1.9	3.9	15	BGA 1264

2.1 Component Marking Information

The processor is identified by the following component markings shown in [Figure 1](#).

Figure 1. Processor Markings



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3.0 Summary Tables of Changes

The following tables indicate the Errata, Specification Changes, Specification Clarifications, and Documentation Changes, which apply to the listed processor stepping. Intel intends to fix some of the errata (if any) in a future stepping of the component, and to account for the other outstanding issues through documentation or Specification Changes as noted.

Note: The errata indicated in [Table 6](#) either replace or are in addition to those errata listed in the *Intel® Processor and Intel® Core™ i3 and Intel® Core™ i3 N-series Specification Update*. Any errata that are not replaced is applicable to the processors covered by this document. The Specification Changes, Specification Clarifications, or Documentation Changes indicated are in addition to those listed in the *Intel® Processor and Intel® Core™ i3 and Intel® Core™ i3 N-series Specification Update*.

3.1 Summary Table

Table 5. Errata Status Legend

Stepping	Description
(No mark) or (Blank Box)	This erratum fixed in listed stepping or specification changes does not apply to listed stepping.

Status	Description
Doc	Document change or update that is implemented.
Planned Fix	This erratum may be fixed in future stepping of the product.
Fixed	This erratum has been previously fixed in Intel hardware, firmware, or software.
No Fix	There are no plans to fix this erratum.

Table 6. Errata Summary Table

Erratum ID	Sighting Description	Status	Impacted Stepping
There are no errata in this revision of the Specification Update Addendum.			

Table 7. Specification Changes Summary Table

Number	Specification Changes
There are no Specification Changes in this revision of the Specification Update Addendum.	

Table 8. Specification Clarifications Summary Table

Number	Specification Clarifications
	There are no Specification Clarifications in this revision of the Specification Update Addendum.

Table 9. Documentation Changes Summary Table

Number	Documentation Changes
	There are no Documentation Changes in this revision of the Specification Update Addendum.

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4.0 *Errata*

There are no errata in this revision of the Specification Update Addendum.

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5.0 *Specification Changes*

There are no specification changes in this revision of the Specification Update Addendum.

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6.0 *Specification Clarifications*

There are no specification clarifications in this revision of the Specification Update Addendum.

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7.0 *Documentation Changes*

There are no documentation changes in this revision of the Specification Update Addendum.

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