



# MICROCODE REVISION GUIDANCE

FEBRUARY 26 2018

# MCU RECOMMENDATIONS

The following table provides details of availability for microcode updates currently planned by Intel. Changes since the previous version are highlighted in yellow.

## LEGEND:

Production Status:

- Planning – Intel has not yet determined a schedule for this MCU.
- Pre-beta – Intel is performing early validation for this MCU.
- Beta – Intel has released this production signed MCU under NDA for all customers to validate.
- Production – Intel has completed all validation and is authorizing customers to use this MCU in a production environment.

Pre-Mitigation Production MCU:

- For products that have not yet released a Production MCU with mitigations for Variant 2 (Spectre), Intel recommends using this version of MCU. This does not impact mitigations for Variant 1 (Spectre) and Variant 3 (Meltdown).
- This version will be removed from the table once a Production MCU with mitigations has been released.

STOP deploying these MCU revs:

- Intel recommends to discontinue using these select versions of MCU that were previously released with mitigations for Variant 2 (Spectre) due to system stability issues.
- Lines with "\*\*\*\*" were previously recommended to discontinue use. Subsequent testing by Intel has determined that these were unaffected by the stability issues and have been re-released without modification.

**NOTE: ALL MCU REVISIONS IN THE TABLE ARE PRODUCTION SIGNED MCUS. NO CHANGES WILL BE REQUIRED TO THESE MCUS AS THEY MOVE FROM BETA TO PRODUCTION UNLESS A NEW REVISION IS MADE AVAILABLE TO FIX ISSUES PRIOR TO PRODUCTION.**

# MICROCODE UPDATE GUIDANCE

Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Anniedale > Moorefield	Intel® Atom® Processor Z3530, Z3560, Z3570, Z3580, Z3590	506A0	01	Production	---	---	00000039
Apollo Lake D0	Intel® Pentium® Processor J4205, N4200 Intel® Celeron® Processor J3355, J3455, N3350, N3450 Intel® Atom® Processor x5-E3930, x5-E3940, x7-E3950	506C9	03	Production	---	---	0000002E
Apollo Lake E0	Intel® Atom® Processor x5-E3930, x5-E3940, x7-E3950	506CA	03	Production	---	---	00000008
Arrandale	Intel® Core™ Processor i7-610E, 620LE/LM/M/UE/UM, 640LM/M/UM, 660LM/UE/UM, 680UM Intel® Core™ Processor i5-430M/UM, 450M, 460M, 470UM, 480M, 520E/M/UM, 540M/UM, 560M/UM, 580M Intel® Core™ Processor i3-330E/M/UM, 350M, 370M, 380M/UM, 390M Intel® Pentium® Processor P6000, P6100, P6200, P6300 Intel® Pentium® Processor U5400, U5600 Intel® Celeron® Processor P4500, P4505, P4600 Intel® Celeron® Processor U3400, 3405, U3600	20655	92	Pre-Beta	0x5	---	---
Avoton/Rangeley	Intel® Atom® Processor C2000 Product Family	406D8	01	Production	---	---	0000012A
Bloomfield	Intel® Core™ Processor Extreme Edition i7-965, 975 Intel® Core™ Processor i7-920, 930, 940, 950, 960	106A4	03	Planning	0x13	---	---
Bloomfield Xeon	Intel® Xeon® Processor W3520, W3530, W3540, W3550, W3565, W3570, W3580	106A5	03	Pre-Beta	0x1B	---	---
Broadwell DE A1	Intel® Xeon® Processor D-1500 NS Product Family	50665	10	Production	---	---	0xE000009

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Broadwell DE V1	Intel® Xeon® Processor D-1500 Product Family	50662	10	Production	---	---	0x15
Broadwell DE V2,V3	Intel® Xeon® Processor D-1500 Product Family	50663	10	Production	---	---	0x7000012
Broadwell DE Y0	Intel® Xeon® Processor D-1500 Product Family	50664	10	Production	---	---	0xF000011
Broadwell H 43e	Intel® Core™ Processor i7-5950HQ, i7-5850HQ, i7-5750HQ, i7-5700HQ Intel® Core™ Processor i5-5575R, i5-5675C, i5-5675R, i7-5775C, i7-5775R Intel® Core™ Processor i7-5700EQ, i7-5850EQ Intel® Pentium® Processor D1507, D1508, D1509, D1517, D1519	40671	22	Production	---	---	0x1D
Broadwell Server E, EP, EP4S	Intel® Xeon® Processor E5v4 Product Family	406F1	EF	Production	---	---	0xB00002A
Broadwell Server EX	Intel® Xeon® Processor E7v4 Product Family	406F1	EF	Beta	0x22	0xB000023 0xB000025	---
Broadwell U/Y	Intel® Core™ Processor i7-5650U, i7-5600U, i7-5557U, i7-5550U, i7-5500U Intel® Core™ Processor i5-5350U, i5-5350, i5-5300U, i5-5287U, i5-5257U, i5-5250U, i5-5200U Intel® Core™ Processor i3-5157U, i3-5020U, i3-5015U, i3-5010U, i3-5006U, i3-5005U, i3-5010U, i5-5350U, i7-5650U Intel® Core™ Processor M-5Y71, M-5Y70, M-5Y51, M-5Y3, M-5Y10c, M-5Y10a, M-5Y10 Intel® Pentium® Processor 3805U, 3825U, 3765U, 3755U, 3215U, 3205U Intel® Celeron® 3765U	306D4	C0	Production	---	---	0x2A

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Broadwell Xeon E3	Intel® Xeon® Processor v4 E3-1258L, E3-1265L, E3-1278L, E3-1285, E3-1285	40671	22	Production	---	---	0x1D
Broxton	Intel® Atom® Scalable Platform	506C2	01	Production	---	---	00000010
Cherry View (Cherry Trail, Braswell)	Intel® Atom® x5-Zxxxx CPU	406C3	01	Production	---	---	00000367
Cherry View (Cherry Trail, Braswell)	Intel® Celeron® Processor Jxxxx, Intel® Celeron® Processor N3xxx, Intel® Pentium® Processor J3xxx, Intel® Pentium® Processor N3xxx, Intel® Atom® x5-E8000 Processor	406C4	01	Production	---	---	00000410
Clarkdale	Intel® Core™ Processor i5-650, 655K, 660, 661, 670, 680 Intel® Core™ Processor i3-530, 540, 550, 560 Intel® Pentium® Processor G6950, G6951, G6960	20655	92	Pre-Beta	0x5	---	---
Clarkdale Xeon	Intel® Xeon® Processor L3406	20652	12	Planning	0xF	---	---
Clarksfield	Intel® Core™ Extreme Processor i7-920XM, 940XM Intel® Core™ Processor i7-720QM, 740QM, 820QM, 840QM	106E5	13	Planning	0x08	---	---
Coffee Lake H (6+2), Coffee Lake S (6+2)	8th Generation Intel® Core™ Processor Family	906EA	22	Production	---	---	0x84
Coffee Lake-S (4+2)	8th Generation Intel® Core™ Desktop Processor Family	906EB	02	Production	---	---	0x84
Coffee Lake-S (4+2) Xeon E	8th Generation Intel® Core™ Processor Family	906EA	22	Production	---	---	0x84
Coffee Lake-S (6+2) x/KBP	8th Generation Intel® Core™ Processor Family	906EA	22	Production	---	---	0x84

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Cougar Mountain (AMT)	Intel® Puma™ 7 Home Gateway	606E1	01	Production	---	---	0x106
Denverton (GLM)	Intel® Atom® Processor C3000 Product Family	506F1	01	Production	---	---	00000020
Gemini Lake	Intel® Pentium® Silver processors N5xxx, J5xxx, Intel® Celeron® processors N4xxx, J4xxx	706A1	01	Production	---	---	00000022
Gladden	Intel® Core™ Processor i3-2115C, i3-3115C Intel® Pentium® Processor B915C, B925C Intel® Celeron® Processor 725C Intel® Xeon® Processor E3-1105C, E3-1125C, E3-1105C v2, E3-1125C v2	306A9	---	Beta	0x1C	---	---
Gulftown	Intel® Core™ i7-970, 980 Intel® Core™ Processor Extreme Edition i7-980X, 990X Intel® Xeon® Processor W3690	206C2	03	Pre-Beta	0x1D	---	---
Harpertown Xeon C0	Intel® Xeon® Processor L5408, L5410, L5420 Intel® Xeon® Processor E5405, E5410, E5420, E5430, E5440, E5450, E5462, E5472 Intel® Xeon® Processor X5450, X5460, X5470, X5472, X5482	10676	40	Planning	0x612	---	---
Harpertown Xeon E0	Intel® Xeon® Processor L5408, L5410, L5420, L5430 Intel® Xeon® Processor E5405, E5410, E5420, E5430, E5440, E5450, E5462, E5472 Intel® Xeon® Processor X5450, X5460, X5470, X5492	1067A	44	Planning	0xA0E	---	---

# MICROCODE UPDATE GUIDANCE

Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Haswell (including H, S)	4th Generation Intel® Core™ Mobile Processor Family, Intel® Pentium® Mobile Processor Family, Intel® Celeron® Mobile Processor Family	306C3	32	Production	---	---	0x24
Haswell Perf Halo	Intel® Core™ Extreme Processor (5960x, 5930x, 5820x)	40661	32	Production	---	---	0x19
Haswell Server E, EP, EP4S	Intel® Xeon® Processor E5v3 Product Family	306F2	6F	Production	---	---	0x3C
Haswell Server EX	Intel® Xeon® Processor E7v3 Product Family	306F4	80	Beta	0xF	0x10	---
Haswell ULT	4th Generation Intel® Core™ Mobile Processor Family, Intel® Pentium® Mobile Processor Family, Intel® Celeron® Mobile Processor Family	40651	72	Production	---	---	0x23
Haswell Xeon E3	Intel® Xeon® Processor E3-1200 v3 Product Family	306C3	32	Production	---	---	0x24
Ivy Bridge	3rd Generation Intel® Core™ Mobile Processor Family, Intel® Pentium® Mobile Processor Family, and Intel® Celeron® Mobile Processor Family	306A9	12	Beta	0x1C	---	---
Ivy Bridge Server E, EN, EP, EP4S	Intel® Xeon® Processor E5v2 Product Family	306E4	ED	Beta	0x428	0x42A	---
Ivy Bridge Server EX	Intel® Xeon® Processor v2 E7-2850, 2870, 2880, 2890, 4809, 4820, 4830, 4850, 4860, 4870, 4880, 4890, 8893, 8891, 8890, 8880L, 8880, 8870, 8857, 8850	306E7	ED	Pre-Beta	0x70D	---	---

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Ivy Bridge Xeon E3	Intel® Xeon® Processor E3-1200 v2 Product Family	306A9	12	Beta	0x1C	---	---
Jasper Forest	Intel® Celeron® Processor P1053 Intel® Xeon® Processor EC3528, EC3529, EC5509, EC5539, EC5549, LC3518, LC3528, LC5518, LC5528	106E4	09	Pre-Beta	0x4	---	---
Kaby Lake H/S/X/G	7th Generation Intel® Core™ Processor Family	906E9	2A	Production	---	---	0x84
Kaby Lake Refresh U 4+2	8th Generation Intel® Core™ Mobile Processor Family	806EA	C0	Production	---	---	0x84
Kaby Lake U/Y, U23e	7th Generation Intel® Core™ Mobile Processors	806E9	C0	Production	---	---	0x84
Kaby Lake Xeon E3, Greenlow	7th Generation Intel® Core™ Processor Family	906E9	2A	Production	---	---	0x84
Knights Landing	Intel® Xeon® Phi™ Processor 72xx	50671	78	Production	---	---	0x1B6
Knights Mill	Intel® Xeon® Phi™ Processor Family	80650	08	Production	---	---	0x18
Lynnfield	Intel® Core™ Processor i7-860, 860S, 870, 870S, 875K, 880 Intel® Core™ Processor i5-750, 750S, 760	106E5	13	Planning	0x08	---	---
Lynnfield Xeon	Intel® Xeon® Processor L3426 Intel® Xeon® Processor X3430, X3440, X3450, X3460, X3470, X3480	106E5	13	Planning	0x08	---	---



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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Nehalem EP, Nehalem WS	Intel® Xeon® Processor E5502, E5503, E5504, E5506, E5507, E5520, E5530, E5540 Intel® Xeon® Processor L5506, L5508, L5518, L5520, L5530 Intel® Xeon® Processor W5580, W5590 Intel® Xeon® Processor X5550, X5560, X5570	106A5	03	Pre-Beta	0x1B	---	---
Nehalem EX	Intel® Xeon® Processor E6510, E6540, E7520, E7530, E7540, L7545, L7555, X6550, X7542, X7550, X7560	206E6	04	Pre-Beta	0x0B	---	---
Penryn/QC	Intel® Core™2 Extreme Processor X9000, X9100 Intel® Core™2 Quad Processor Q9000, Q9100 Intel® Core™2 Duo Processor T6400, T6500, T6670, T8100, T8300, T9300, T9400, T9500, T9550, T9600, T9800, T9900, SU9300, SU9400, SU9600, SP9300, SP9400, SP9600, SL9380, SL9400, SL9600, SL9300, P7350, P7370, P7450, P7550, P7570, P8400, P8600, P8700, P8800, P9500, P9600, P9700 Intel® Core™2 Solo Processor SU3500, ULV SU3500, ULV SU3300 Intel® Pentium® Processor T4200, T4300, T4400, T4500 Intel® Celeron® Processor 900, 925, SU2300, T3100, T3300, T3500, ULV 763 Intel® Celeron® M Processor ULV 722, ULV 723, ULV 743	1067A	B1	Planning	0xA0E	---	---

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Sandy Bridge	Intel® Core™ i3-21xx/23xx-T/M/E/UE Processor, Intel® Core™ i5-23xx/24xx/25xx-T/S/M/K Processor, Intel® Core™ i7-2xxx-S/K/M/QM/LE/UE/QE Processor, Intel® Core™ i7-29xxXM Extreme Processor, Intel® Celeron® Desktop G4xx, G5xx Processor, Intel® Celeron® Mobile 8xx, B8xx Processor, Intel® Pentium® Desktop 350, G6xx, G6xxT, G8xx Processor, Intel® Pentium® Mobile 9xx, B9xx Processor	206A7	12	Beta	0x29	---	---
Sandy Bridge Server EN/EP/EP4S	Intel® Xeon® Processor E5 Product Family	206D6	6D	Beta	0x619	---	---
Sandy Bridge Server EN/EP/EP4S	Intel® Xeon® Processor E5 Product Family	206D7	6D	Beta	0x710	---	---
Sandy Bridge Xeon E3	Intel® Xeon® Processor E3-1200 Product Family	206A7	12	Beta	0x29	---	---
Skylake D, Bakerville	Intel® Xeon® D-2100 processor	50654	B7	Production	---	---	0x2000043
Skylake H/S	6th Generation Intel® Core™ Processor Family	506E3	36	Production	---	---***	0xC2***
Skylake Server	Intel® Xeon® Scalable Processor Family	50654	B7	Production	---	---	0x2000043
Skylake U/Y	6th Generation Intel® Core™ m Processors	406E3	C0	Production	---	---***	0xC2***
Skylake U23e	6th Generation Intel® Core™ m Processors	406E3	C0	Production	---	---***	0xC2***

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Skylake X, Basin Falls	Intel® Core™ i9 79xxX, 78xxX	50654	B7	Production	---	---	0x2000043
Skylake Xeon E3	Intel® Xeon® Processor E3-1200 v5 Product Family	506E3	36	Beta	0xBA	---***	---
SoFIA 3G ES2.1 and Granite 4	Intel® Atom® x3-C3130 Processor	506D1	02	Production	---	---	00000103
SoFIA 3GR	Intel® Atom® Processor x3-C3200RK, x3-C3230RK	506D1	02	Planning	---	---	---
Tangier (SLM)	Intel® Atom® Processor Z34XX	406A8	01	Production	---	---	00000833
Tangier (SLM)	Intel® Atom® Processor Z34XX	406A9	01	Production	---	---	00000833
Valleyview, Bay Trail I (B2, B3)	Intel® Atom® Processor E3800 Product Family	30673	01	Production	---	---	0000326
Valleyview, Bay Trail I (D0, D1) Valleyview, Bay Trail M/D (D1)	Intel® Atom® Processor E3800 Product Family, Intel® Celeron® Processor N2807, N2930, Intel® Pentium® Processor J1800, J1900	30679	0F (Was 01 for D0-only MCUs)	Production	---	---	0000090A
Valleyview, Bay Trail M/D (B2, B3)	Intel® Celeron® Processor Jxxxx & Nxxxx, Intel® Pentium® Processor Jxxxx & Nxxxx	30673	0C	Production	---	---	0000326
Valleyview, Bay Trail M/D (C0)	Intel® Celeron® Processor Jxxxx & Nxxxx Intel® Pentium® Processor Jxxxx & Nxxxx	30678	0C	Production	---	---	00000836
Valleyview, Bay Trail T (B2, B3)	Intel® Atom® Processor Z3600 & Z3700 Series	30673	02	Production	---	---	0000326

# MICROCODE UPDATE GUIDANCE

Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Valleyview, Bay Trail T (C0)	Intel® Atom® Processor Z3600 & Z3700 Series	30678	02	Production	---	---	00000836
Westmere EP, WS	Intel® Xeon® Processor E5603, E5606, E5607, E5620, E5630, E5640, E5645, E5649 Intel® Xeon® Processor L5609, L5618, L5630, L5638, L5640 Intel® Xeon® Processor W3670, W3680 Intel® Xeon® Processor X5647, X5650, X5660, X5667, X5670, X5672, X5675, X5677, X5680, X5687, X5690, X5698	206C2	03	Pre-Beta	0x1D	---	---
Westmere EX (EGL, WSM)	Intel® Xeon® Processor E7-2803, 2820, 2830, 2850, 2860, 2870, 4807, 4820, 4830, 4850, 4860, 4870, 8830, 8837, 8850, 8860, 8867L, 8870	206F2	05	Planning	0x39	---	---
Wolfdale C0, M0	Intel® Core™ 2 Duo Processor E7200, E7300, E8190, E8200, E8300, E8400, E8500	10676	91	Planning	0x612	---	---
Wolfdale E0, R0	Intel® Core™ 2 Duo Processor E7400, E7500, E8400, E8500, E8600 Intel® Pentium® Processor E5200, E5300, E5400, E5500, E5700, E5800, E6300, E6500, E6500K, E6600, E6700, E6800 Intel® Celeron® Processor E3200, E3300, E3400, E3500	1067A	B1	Planning	0xA0E	---	---
Wolfdale Xeon C0	Intel® Xeon® Processor E3110, E5205, E5220, L5240, X5260, X5272	10676	04	Planning	0x612	---	---

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Product Names	Public Name	CPUID	Platform ID	Production Status	Pre-Mitigation Production MCU	STOP deploying these MCU revs	New Production MCU Rev
Wolfdale Xeon E0	Intel® Xeon® Processor E3110, E3120, E5205, E5220, L3110, L5215, L5240, X5260, X5270, X5272	1067A	44	Planning	0xA0E	---	---
XGold 7272	Intel® XMM™ 7272 Modem	60650	01	Production	---	---	00000015
Yorkfield	Intel® Core™2 Extreme Processor QX9650, QX9770, QX9775 Intel® Core™2 Quad Processor Q8200, Q8200S, Q8400, Q8400S, Q9300, Q9400, Q9400S, Q9450, Q9500, Q9505, Q9505S, Q9550, Q9550S, Q9650	10677	10	Planning	0x70D	---	---
Yorkfield Xeon	Intel® Xeon® Processor L3360, X3320, X3330, X3350, X3360, X3370, X3380	10677	10	Planning	0x70D	---	---

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