

e² studio 7.4.0

Release Note

R20UT4531EE0100 Rev.1.00 Apr. 18th, 2019

Introduction

This document outlines the device support, new features added in 7.4.0, fixed issues and open issues in e² studio 7.4.0.

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1. Product Information

1.1 Supported Operating Systems

These operating systems are officially supported by e² studio:

- Windows 7 32-bit
- Windows 7 64-bit
- Windows 8.1 32-bit
- Windows 8.1 64-bit
- Windows 10 32-bit
- Windows 10 64-bit

1.2 Supported Toolchains

The following toolchains are supported in e² studio 7.4.0.

		Renesas	GNU Arm Embedded (*2)	Renesas GCC/ GNURZ/ARM (*3)	IAR (*4)	Green Hills (*5)
	RL78	Yes (CC-RL)	No	Yes	Yes	No
Device Family	RX	Yes (CC-RX)	No	Yes	Yes	No
	RH850	No	No	No	Yes	Yes
	RZ/ARM	No	No (*1)	Yes	Yes	No
_	Synergy/ARM	No	Yes	No	Yes	No

Note:

*1: Project converter is available to convert from GNUARM RZ/none to GNU ARM Embedded toolchain.

- *2: The GCC toolchains for RZ Family and Renesas Synergy[™] are distributed via Arm Developer at <u>https://developer.arm.com/open-source/gnu-toolchain/gnu-rm</u> or Launchpad.net at: <u>https://launchpad.net/gcc-arm-embedded</u>. They are also available using the "Additional components" page in the e² studio installer.
- *3: Legacy GNUARM toolchains are available from https://gcc-renesas.com/. In addition, the latest RX and RL78 Renesas GCC toolchains are available from this website.
- *4: The IAR toolchain plugins are available via the "Help"->" IAR Embedded Workbench plugin manager" menu in e² studio. These Eclipse plugins are provided by IAR and are not supported by Renesas.
- *5: The Green Hills toolchain plugins are available within the e² studio product. These plugins are provided by Green Hills and are not supported by Renesas.



2. Device Support

2.1 **Project Generator Support**

Note: The Renesas SH device family is no longer supported in e² studio.

Family	Group	Devices
EC-1	EC-1	R9A06G043
	C1H	R7F701260, R7F701270, (Debug Support Only)
	C1M	R7F701263, R7F701271, (Debug Support Only)
	D1L1	R7F701401, R7F701421, (Debug Support Only)
	D1L2	R7F701402, R7F701422, (Debug Support Only)
	D1M1	R7F701404, R7F701405, (Debug Support Only)
	-	R7F701442, R7F701462, (Debug Support Only)
	D1M2	R7F701408, R7F701410, R7F701428, R7F701430, (Debug Support Only)
	E1L	R7F701201, R7F701205, (Debug Support Only)
	E1M-S	R7F701202, R7F701204, (Debug Support Only)
	E1M-S2	R7F701215, R7F701216, (Debug Support Only)
	-	R7F701Z05, R7F701Z06, R7F701Z07, (Debug Support Only)
		R7F701501, R7F701502, R7F701503, R7F701506, R7F701507, R7F701508,
		R7F701511, R7F701512, R7F701513, (Debug Support Only)
	F1H	R7F701521, R7F701522, R7F701524, R7F701525, (Debug Support Only)
		R7F701542, R7F701543, R7F701546, R7F701547, R7F701557, R7F701560, R7F701561, R7F701562, R7F701563, R7F701566, R7F701567, R7F701577,
		R7F701580, R7F701581, R7F701582, R7F701583, R7F701586, R7F701586, R7F701587,
		R7F701597, R7F701602, R7F701603, R7F701610, R7F701611, R7F701612,
		R7F701613, R7F701620, R7F701621, R7F701622, R7F701623, (Debug
	F1K	Support Only)
		R7F701708, R7F701709, R7F701710, R7F701711, R7F701714, R7F701715,
	F1KH	(Debug Support Only)
		R7F701644, R7F701645, R7F701646, R7F701647, R7F701648, R7F701649,
		R7F701650, R7F701651, R7F701652, R7F701653, R7F701684, R7F701685,
		R7F701686, R7F701687, R7F701688, R7F701689, R7F701690, R7F701691,
	F1KM	R7F701692, R7F701693, R7F701694, R7F701695, (Debug Support Only)
		R7F701002xAFP, R7F701003xAFP, R7F701006xAFP, R7F701007xAFP,
		R7F701008xAFP, R7F701009xAFP, R7F701010xAFP, R7F701011xAFP,
		R7F701012xAFP, R7F701013xAFP, R7F701014xAFP, R7F701015xAFP,
		R7F701016xAFP, R7F701017xAFP, R7F701018xAFP, R7F701019xAFP,
		R7F701020xAFP, R7F701021xAFP, R7F701022xAFP, R7F701023xAFP,
		R7F701024xAFP, R7F701025xAFP, R7F701026xAFP, R7F701027xAFP,
		R7F701028xAFP, R7F701029xAFP, R7F701030xAFP, R7F701032xAFP,
		R7F701033xAFP, R7F701034xAFP, R7F701040, R7F701041, R7F701042,
		R7F701043, R7F701044, R7F701045, R7F701046, R7F701047, R7F701048,
		R7F701049, R7F701050, R7F701051, R7F701052, R7F701053, R7F701054,
RH850	F1L	R7F701055, R7F701056, R7F701057, (Debug Support Only)

	F1M	R7F701544, R7F701545, R7F701548, R7F701549, R7F701552, R7F701553, R7F701564, R7F701565, R7F701568, R7F701569, R7F701572, R7F701573, (Debug Support Only)
		R7F701370AEEBG, R7F701371EABG, R7F701372EABG, R7F701396EABG,
	P1H-C	(Debug Support Only)
	P1L-C	R7F701388, R7F701389, R7F701390, R7F701391, (Debug Support Only)
	P1M	R7F701304, R7F701305, R7F701310, R7F701311, R7F701312, R7F701313, R7F701314, R7F701315, R7F701318, R7F701319, R7F701320, R7F701321, R7F701322, R7F701323, (Debug Support Only)
	P1M-C	R7F701373xABG, R7F701374xAFP, R7F701397xABG, (Debug Support Only)
	P1M-E	R7F701375, R7F701376, R7F701377, R7F701378, R7F701379, R7F701380, R7F701381, R7F701382, R7F701383, R7F701384, R7F701385, R7F701386, (Debug Support Only)
	-	R7F701060xAFP, R7F701062xAFP, R7F701064xAFP, R7F701065xAFP, R7F701067xAFP, R7F701069xAFP, R7F701071xAFP, (Debug Support Only)
	D1A	R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLD, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10DPK, R5F10DPL, R5F10DSJ, R5F10DSK, R5F10DSL, R5F10TPJ
	F12	R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE
	F13	R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BLC, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG
	F14	R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ
		R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG,
	F15	R5F113TH, R5F113TJ, R5F113TK, R5F113TL
	F1A	R5F114GC, R5F114GD, R5F114GE, R5F114GF, R5F114GG
	F1E	R5F11KLE, R5F11LLG
B 1 - 7	G10	R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47
RL78	G11	R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A

	R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277,
	R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9,
	R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A,
	R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8,
G12	R5F103A9, R5F103AA
	R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C,
	R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E,
	R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG,
	R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG,
	R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG,
	R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG,
	R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF,
	R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA,
	R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH,
	R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE, R5F100JF,
	R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL, R5F100LC, R5F100LD,
	R5F100LE, R5F100LF, R5F100LG, R5F100LH, R5F100LJ, R5F100LK, R5F100LL,
	R5F100MF, R5F100MG, R5F100MH, R5F100MJ, R5F100MK, R5F100ML,
	R5F100PF, R5F100PG, R5F100PH, R5F100PJ, R5F100PK, R5F100PL,
	R5F100SH, R5F100SJ, R5F100SK, R5F100SL, R5F1016A, R5F1016C,
	R5F1016D, R5F1016E, R5F1017A, R5F1017C, R5F1017D, R5F1017E,
	R5F1018A, R5F1018C, R5F1018D, R5F1018E, R5F101AA, R5F101AC,
	R5F101AD, R5F101AE, R5F101AF, R5F101AG, R5F101BA, R5F101BC,
	R5F101BD, R5F101BE, R5F101BF, R5F101BG, R5F101CA, R5F101CC,
	R5F101CD, R5F101CE, R5F101CF, R5F101CG, R5F101EA, R5F101EC,
	R5F101ED, R5F101EE, R5F101EF, R5F101EG, R5F101EH, R5F101FA,
	R5F101FC, R5F101FD, R5F101FE, R5F101FF, R5F101FG, R5F101FH,
	R5F101FJ, R5F101FK, R5F101FL, R5F101GA, R5F101GC, R5F101GD,
	R5F101GE, R5F101GF, R5F101GG, R5F101GH, R5F101GJ, R5F101GK,
	R5F101GL, R5F101JC, R5F101JD, R5F101JE, R5F101JF, R5F101JG, R5F101JH,
	R5F101JJ, R5F101JK, R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF,
	R5F101LG, R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF,
	R5F101MG, R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF,
	R5F101PG, R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH,
G13	R5F101SJ, R5F101SK, R5F101SL
	R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG,
	R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG,
	R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG,
	R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG,
	R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF,
	R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD,
	R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK,
	R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH,
	R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104LH,
	R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH,
	R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH,
G14	R5F104PJ, R5F104PK, R5F104PL
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RENESAS

	C1 A	R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE,
	G1A G1C	R5F10ELC, R5F10ELD, R5F10ELE R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC
	G1C	R5F11AGG, R5F11AGH, R5F11AGJ
	G1E	R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME
		R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE,
	G1F	R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE
	G1G	R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA
	G1H	R5F11FLJ, R5F11FLK, R5F11FLL
	H1D	R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF, R5F11NMF, R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG
	I1A	R5F1076C, R5F107AC, R5F107AE, R5F107DE
	I1B	R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG
	I1C	R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NPG, R5F10NPJ
	l1D	R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC
	I1E	R5F11CBC, R5F11CCC
		R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC,
	L12	R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC
	L13	R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG
	L1A	R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG
	L1C	R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110NE, R5F110NF, R5F110NG, R5F110NH, R5F110NJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111NE, R5F111NF, R5F111NG, R5F111NH, R5F111NJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ
	110	R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J
	111	R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J
	113	R5F51135, R5F51136, R5F51137, R5F51138
	130	R5F51303, R5F51305, R5F51305B, R5F51306, R5F51306B, R5F51307, R5F51308
	210	R5F52103, R5F52104, R5F52105, R5F52106, R5F52107, R5F52108, R5F5210A, R5F5210B
	210 21A	R5F521A6, R5F521A7, R5F521A8
	220	R5F52201, R5F52203, R5F52205, R5F52206
	230	R5F52305, R5F52306
	230	R5F52315, R5F52316, R5F52317, R5F52318
	231 23T	R5F523T3, R5F523T5
RX	24T	R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE
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	24U	R5F524UB, R5F524UC, R5F524UE
	610	R5F56104, R5F56106, R5F56107, R5F56108
	621	R5F56216, R5F56217, R5F56218
	62G	R5F562G7, R5F562GA
	62N	R5F562N7, R5F562N8
	62T	R5F562T6, R5F562T7, R5F562TA
	630	R5F56307, R5F56308, R5F5630A, R5F5630B, R5F5630D, R5F5630E
	631	R5F56316, R5F56317, R5F56318, R5F5631A, R5F5631B, R5F5631D, R5F5631E, R5F5631F, R5F5631G, R5F5631J, R5F5631K, R5F5631M, R5F5631MF, R5F5631N, R5F5631P, R5F5631PF, R5F5631W, R5F5631Y, R5S56310
	634	R5F5634B, R5F5634B_5V, R5F5634D, R5F5634D_5V, R5F5634E, R5F5634E_5V
	63N	R5F563NA, R5F563NB, R5F563ND, R5F563NE, R5F563NF, R5F563NK, R5F563NW, R5F563NY
	63T	R5F563T4, R5F563T5, R5F563T6, R5F563TB, R5F563TB_5V, R5F563TC, R5F563TC_5V, R5F563TE, R5F563TE_5V
	64M	R5F564MF, R5F564MG, R5F564MJ, R5F564ML
		R5F56514, R5F56517, R5F56519, R5F5651C, R5F5651C_DUAL, R5F5651E, R5F5651E_DUAL
	651	R5F56519DMB, R5F5651EDMB, R5F5651EDMB_DUAL, (Debug Support Only)
		R5F565N4, R5F565N7, R5F565N9, R5F565NC, R5F565NC_DUAL, R5F565NE, R5F565NE_DUAL
	65N	R5F565N9DMB, R5F565NEDMB, R5F565NEDMB_DUAL, (Debug Support Only)
	66T	R5F566TA, R5F566TE, R5F566TF, R5F566TK
	71M	R5F571MF, R5F571MG, R5F571MJ, R5F571ML
	72T	R5F572TF, R5F572TK
	A1	R7S721000, R7S721000_DualSPI, R7S721001, R7S721001_DualSPI, R7S721010, R7S721010_DualSPI, R7S721011, R7S721011_DualSPI, R7S721020, R7S721020_DualSPI, R7S721021, R7S721021_DualSPI, R7S721030, R7S721030_DualSPI, R7S721031, R7S721031_DualSPI, R7S721034, R7S721034_DualSPI
	A2	R7S921040, R7S921041, R7S921042, R7S921043, R7S921045, R7S921046, R7S921047, R7S921048, R7S921051, R7S921052, R7S921053, R7S921056, R7S921057, R7S921058
	A2 G1C	R7S921057, R7S921058 R8A77470
		R8A77450
	G1E	R8A77450_Core1, (Debug Support Only)
RZ	G1H	R8A77420

		R8A77430
	G1M	R8A77430_Core1, (Debug Support Only)
-	G1N	R8A77440
-	-	R8A774D, R8A774C, R8A7748, R8A774A, R8A774B
	T1	R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910015_M3, R7S910016, R7S910016_M3, R7S910017, R7S910017_M3, R7S910018, R7S910018_M3, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910115_M3, R7S910116, R7S910116_M3, R7S910117, R7S910117_M3, R7S910118, R7S910118_M3, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136
	S1JA	R7FS1JA783A01CFM, R7FS1JA783A01CNE, R7FS1JA783A01CNF, R7FS1JA782A01CBT, R7FS1JA783A01CFJ
-	S124	R7FS124762A01CLM, R7FS124763A01CFL, R7FS124763A01CFM, R7FS124772A01CLM, R7FS124773A01CFL, R7FS124773A01CFM, R7FS124773A01CNB, R7FS124773A01CNE, R7FS124773A01CNF
	S128	R7FS128782A01CLM, R7FS128783A01CFJ, R7FS128783A01CFL, R7FS128783A01CFM, R7FS128783A01CNE, R7FS128783A01CNG
-	S3A1	R7FS3A17C2A01CLK, R7FS3A17C3A01CFB, R7FS3A17C2A01CBJ, R7FS3A17C2A01CLJ, R7FS3A17C3A01CFM, R7FS3A17C3A01CFP, R7FS3A17C3A01CNB
-	S3A3	R7FS3A37A2A01CLK, R7FS3A37A3A01CFB, R7FS3A37A2A01CBJ, R7FS3A37A2A01CLJ, R7FS3A37A3A01CFP, R7FS3A37A3A01CFM, R7FS3A37A3A01CNB
Synergy	S3A6	R7FS3A6782A01CLJ, R7FS3A6783A01CFL, R7FS3A6783A01CFM, R7FS3A6783A01CFP, R7FS3A6783A01CNB, R7FS3A6783A01CNE, R7FS3A6783A01CNF
-	S3A7	R7FS3A77C2A01CLK, R7FS3A77C3A01CFB, R7FS3A77C2A01CBJ, R7FS3A77C3A01CFP, R7FS3A77C2A01CLJ, R7FS3A77C3A01CFM, R7FS3A77C2A01CNB, R7FS3A77C3A01CNB
_	S5D3	R7FS5D37A2A01CLJ, R7FS5D37A3A01CFP, R7FS5D37A3A01CFM, R7FS5D37A3A01CNB
-	S5D5	R7FS5D57A2A01CLK, R7FS5D57A3A01CFB, R7FS5D57A3A01CFP, R7FS5D57C2A01CLK, R7FS5D57C3A01CFB, R7FS5D57C3A01CFP
-	S5D9	R7FS5D97C2A01CBG, R7FS5D97C3A01CFC, R7FS5D97C2A01CLK, R7FS5D97C3A01CFB, R7FS5D97C3A01CFP, R7FS5D97E2A01CBG, R7FS5D97E3A01CFC, R7FS5D97E2A01CLK, B7FS5D97E2A01CEB, B7FS5D97E3A01CEB
-		R7FS5D97E3A01CFB, R7FS5D97E3A01CFP

\$7G2	R7FS7G27H2A01CBD, R7FS7G27G2A01CBD, R7FS7G27H2A01CBG, R7FS7G27G2A01CBG, R7FS7G27H2A01CFC, R7FS7G27H3A01CFC, R7FS7G27G2A01CFC, R7FS7G27G3A01CFC, R7FS7G27H2A01CLK, R7FS7G27G2A01CLK, R7FS7G27H3A01CFB, R7FS7G27G3A01CFB, R7FS7G27G3A01CFP
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2.2 Code Generator & Smart Configurator Support

CPU	Family	Devices
	D1A	R5F10CGB, R5F10CGC, R5F10CGD, R5F10CLD, R5F10CMD, R5F10CME, R5F10DGC, R5F10DGD, R5F10DGE, R5F10DLD, R5F10DLE, R5F10DMD, R5F10DME, R5F10DMF, R5F10DMG, R5F10DMJ, R5F10DPE, R5F10DPF, R5F10DPG, R5F10DPJ, R5F10TPJ
	F12	R5F10968, R5F1096A, R5F1096B, R5F1096C, R5F1096D, R5F1096E, R5F109AA, R5F109AB, R5F109AC, R5F109AD, R5F109AE, R5F109BA, R5F109BB, R5F109BC, R5F109BD, R5F109BE, R5F109GA, R5F109GB, R5F109GC, R5F109GD, R5F109GE, R5F109LA, R5F109LB, R5F109LC, R5F109LD, R5F109LE
RL78	F13	R5F10A6A, R5F10A6C, R5F10A6D, R5F10A6E, R5F10AAA, R5F10AAC, R5F10AAD, R5F10AAE, R5F10ABA, R5F10ABC, R5F10ABD, R5F10ABE, R5F10AGA, R5F10AGC, R5F10AGD, R5F10AGE, R5F10AGF, R5F10AGG, R5F10ALC, R5F10ALD, R5F10ALE, R5F10ALF, R5F10ALG, R5F10AME, R5F10AMF, R5F10AMG, R5F10BAC, R5F10BAD, R5F10BAE, R5F10BAF, R5F10BAG, R5F10BBC, R5F10BBD, R5F10BBE, R5F10BBF, R5F10BBG, R5F10BGC, R5F10BGD, R5F10BGE, R5F10BGF, R5F10BGG, R5F10BMF, R5F10BLD, R5F10BLE, R5F10BLF, R5F10BLG, R5F10BME, R5F10BMF, R5F10BMG
	F14	R5F10PAD, R5F10PAE, R5F10PBD, R5F10PBE, R5F10PGD, R5F10PGE, R5F10PGF, R5F10PGG, R5F10PGH, R5F10PGJ, R5F10PLE, R5F10PLF, R5F10PLG, R5F10PLH, R5F10PLJ, R5F10PME, R5F10PMF, R5F10PMG, R5F10PMH, R5F10PMJ, R5F10PPE, R5F10PPF, R5F10PPG, R5F10PPH, R5F10PPJ
	F15	R5F113GK, R5F113GL, R5F113LK, R5F113LL, R5F113MK, R5F113ML, R5F113PG, R5F113PH, R5F113PJ, R5F113PK, R5F113PL, R5F113TG, R5F113TH, R5F113TJ, R5F113TK, R5F113TL
	F1E	R5F11KLE, R5F11LLG
	G10	R5F10Y14, R5F10Y16, R5F10Y17, R5F10Y44, R5F10Y46, R5F10Y47
	G11	R5F1051A, R5F1054A, R5F1056A, R5F1057A, R5F1058A
	G12	R5F10266, R5F10267, R5F10268, R5F10269, R5F1026A, R5F10277, R5F10278, R5F10279, R5F1027A, R5F102A7, R5F102A8, R5F102A9, R5F102AA, R5F10366, R5F10367, R5F10368, R5F10369, R5F1036A, R5F10377, R5F10378, R5F10379, R5F1037A, R5F103A7, R5F103A8, R5F103A9, R5F103AA

	R5F1006A, R5F1006C, R5F1006D, R5F1006E, R5F1007A, R5F1007C,
	R5F1007D, R5F1007E, R5F1008A, R5F1008C, R5F1008D, R5F1008E,
	R5F100AA, R5F100AC, R5F100AD, R5F100AE, R5F100AF, R5F100AG,
	R5F100BA, R5F100BC, R5F100BD, R5F100BE, R5F100BF, R5F100BG,
	R5F100CA, R5F100CC, R5F100CD, R5F100CE, R5F100CF, R5F100CG,
	R5F100EA, R5F100EC, R5F100ED, R5F100EE, R5F100EF, R5F100EG,
	R5F100EH, R5F100FA, R5F100FC, R5F100FD, R5F100FE, R5F100FF,
	R5F100FG, R5F100FH, R5F100FJ, R5F100FK, R5F100FL, R5F100GA,
	R5F100GC, R5F100GD, R5F100GE, R5F100GF, R5F100GG, R5F100GH,
	R5F100GJ, R5F100GK, R5F100GL, R5F100JC, R5F100JD, R5F100JE,
	R5F100JF, R5F100JG, R5F100JH, R5F100JJ, R5F100JK, R5F100JL,
	R5F100LC, R5F100LD, R5F100LE, R5F100LF, R5F100LG, R5F100LH,
	R5F100LJ, R5F100LK, R5F100LL, R5F100MF, R5F100MG, R5F100MH,
	R5F100MJ, R5F100MK, R5F100ML, R5F100PF, R5F100PG, R5F100PH,
	R5F100PJ, R5F100PK, R5F100PL, R5F100SH, R5F100SJ, R5F100SK,
G13	R5F100SL, R5F1016A, R5F1016C, R5F1016D, R5F1016E, R5F1017A,
	R5F1017C, R5F1017D, R5F1017E, R5F1018A, R5F1018C, R5F1018D,
	R5F1018E, R5F101AA, R5F101AC, R5F101AD, R5F101AE, R5F101AF,
	R5F101AG, R5F101BA, R5F101BC, R5F101BD, R5F101BE, R5F101BF,
	R5F101BG, R5F101CA, R5F101CC, R5F101CD, R5F101CE, R5F101CF,
	R5F101CG, R5F101EA, R5F101EC, R5F101ED, R5F101EE, R5F101EF,
	R5F101EG, R5F101EH, R5F101FA, R5F101FC, R5F101FD, R5F101FE,
	R5F101FF, R5F101FG, R5F101FH, R5F101FJ, R5F101FK, R5F101FL,
	R5F101GA, R5F101GC, R5F101GD, R5F101GE, R5F101GF, R5F101GG,
	R5F101GH, R5F101GJ, R5F101GK, R5F101GL, R5F101JC, R5F101JD,
	R5F101JE, R5F101JF, R5F101JG, R5F101JH, R5F101JJ, R5F101JK,
	R5F101JL, R5F101LC, R5F101LD, R5F101LE, R5F101LF, R5F101LG,
	R5F101LH, R5F101LJ, R5F101LK, R5F101LL, R5F101MF, R5F101MG,
	R5F101MH, R5F101MJ, R5F101MK, R5F101ML, R5F101PF, R5F101PG,
	R5F101PH, R5F101PJ, R5F101PK, R5F101PL, R5F101SH, R5F101SJ,
	R5F101SK, R5F101SL

G14	R5F104AA, R5F104AC, R5F104AD, R5F104AE, R5F104AF, R5F104AG, R5F104BA, R5F104BC, R5F104BD, R5F104BE, R5F104BF, R5F104BG, R5F104CA, R5F104CC, R5F104CD, R5F104CE, R5F104CF, R5F104CG, R5F104EA, R5F104EC, R5F104ED, R5F104EE, R5F104EF, R5F104EG, R5F104EH, R5F104FA, R5F104FC, R5F104FD, R5F104FE, R5F104FF, R5F104FG, R5F104FH, R5F104FJ, R5F104GA, R5F104GC, R5F104GD, R5F104GE, R5F104GF, R5F104GG, R5F104GH, R5F104GJ, R5F104GK, R5F104GL, R5F104JC, R5F104JD, R5F104JE, R5F104JF, R5F104JG, R5F104JH, R5F104JJ, R5F104LC, R5F104LD, R5F104LE, R5F104LF, R5F104LG, R5F104HH, R5F104LJ, R5F104LK, R5F104LL, R5F104MF, R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF,
	R5F104MG, R5F104MH, R5F104MJ, R5F104MK, R5F104ML, R5F104PF, R5F104PG, R5F104PH, R5F104PJ, R5F104PK, R5F104PL
G1A	R5F10E8A, R5F10E8C, R5F10E8D, R5F10E8E, R5F10EBA, R5F10EBC, R5F10EBD, R5F10EBE, R5F10EGA, R5F10EGC, R5F10EGD, R5F10EGE, R5F10ELC, R5F10ELD, R5F10ELE
G1C	R5F10JBC, R5F10JGC, R5F10KBC, R5F10KGC

	G1D	R5F11AGG, R5F11AGH, R5F11AGJ
	G1E	
	GIE	R5F10FLC, R5F10FLD, R5F10FLE, R5F10FMC, R5F10FMD, R5F10FME
	G1F	R5F11B7C, R5F11B7E, R5F11BBC, R5F11BBE, R5F11BCC, R5F11BCE,
		R5F11BGC, R5F11BGE, R5F11BLC, R5F11BLE
	G1G	
		R5F11EA8, R5F11EAA, R5F11EB8, R5F11EBA, R5F11EF8, R5F11EFA
	G1H	R5F11FLJ, R5F11FLK, R5F11FLL
	H1D	R5F11NGF, R5F11NGG, R5F11NLF, R5F11NLG, R5F11NME, R5F11NMF,
		R5F11NMG, R5F11PLF, R5F11PLG, R5F11RMG
	I1A	R5F1076C, R5F107AC, R5F107AE, R5F107DE
	I1B	R5F10MME, R5F10MMG, R5F10MPE, R5F10MPG
	I1C	R5F10NLE, R5F10NLG, R5F10NME, R5F10NMG, R5F10NMJ, R5F10NPJ
	I1D	R5F11768, R5F1176A, R5F11778, R5F1177A, R5F117A8, R5F117AA, R5F117AC, R5F117BA, R5F117BC, R5F117GA, R5F117GC
	I1E	R5F11CBC, R5F11CCC
	L12	R5F10RB8, R5F10RBA, R5F10RBC, R5F10RF8, R5F10RFA, R5F10RFC, R5F10RG8, R5F10RGA, R5F10RGC, R5F10RJ8, R5F10RJA, R5F10RJC, R5F10RLA, R5F10RLC
	L13	R5F10WLA, R5F10WLC, R5F10WLD, R5F10WLE, R5F10WLF, R5F10WLG, R5F10WMA, R5F10WMC, R5F10WMD, R5F10WME, R5F10WMF, R5F10WMG
	L1A	R5F11MMD, R5F11MME, R5F11MMF, R5F11MPE, R5F11MPF, R5F11MPG
	L1C	R5F110ME, R5F110MF, R5F110MG, R5F110MH, R5F110MJ, R5F110PE, R5F110PF, R5F110PG, R5F110PH, R5F110PJ, R5F111ME, R5F111MF, R5F111MG, R5F111MH, R5F111MJ, R5F111PE, R5F111PF, R5F111PG, R5F111PH, R5F111PJ
	110	R5F51101, R5F51103, R5F51104, R5F51105, R5F5110H, R5F5110J
	111	R5F51111, R5F51113, R5F51114, R5F51115, R5F51116, R5F51117, R5F51118, R5F5111J
	113	R5F51135, R5F51136, R5F51137, R5F51138
	130	R5F51303, R5F51305
	230	R5F52305, R5F52306
	231	R5F52315, R5F52316, R5F52317, R5F52318
2	23T	R5F523T3, R5F523T5
	24T	R5F524T8, R5F524TA, R5F524TB, R5F524TC, R5F524TE
	24U	R5F524UB, R5F524UC, R5F524UE
	64M	R5F564MF, R5F564MG, R5F564MJ, R5F564ML
	651	R5F56514, R5F56517, R5F56519
	65N	R5F565N4, R5F565N7, R5F565N9
	71M	R5F571MF, R5F571MG, R5F571MJ, R5F571ML
	66T	R5F566TA, R5F566TE, R5F566TF, R5F566TK

RX

	72T	R5F572TF, R5F572TK
RZ	T1	R7S910001, R7S910002, R7S910006, R7S910007, R7S910011, R7S910013, R7S910015, R7S910016, R7S910017, R7S910018, R7S910025, R7S910026, R7S910027, R7S910028, R7S910035, R7S910036, R7S910101, R7S910102, R7S910106, R7S910107, R7S910111, R7S910113, R7S910115, R7S910116, R7S910117, R7S910118, R7S910125, R7S910126, R7S910127, R7S910128, R7S910135, R7S910136



3. Smart Manual Support

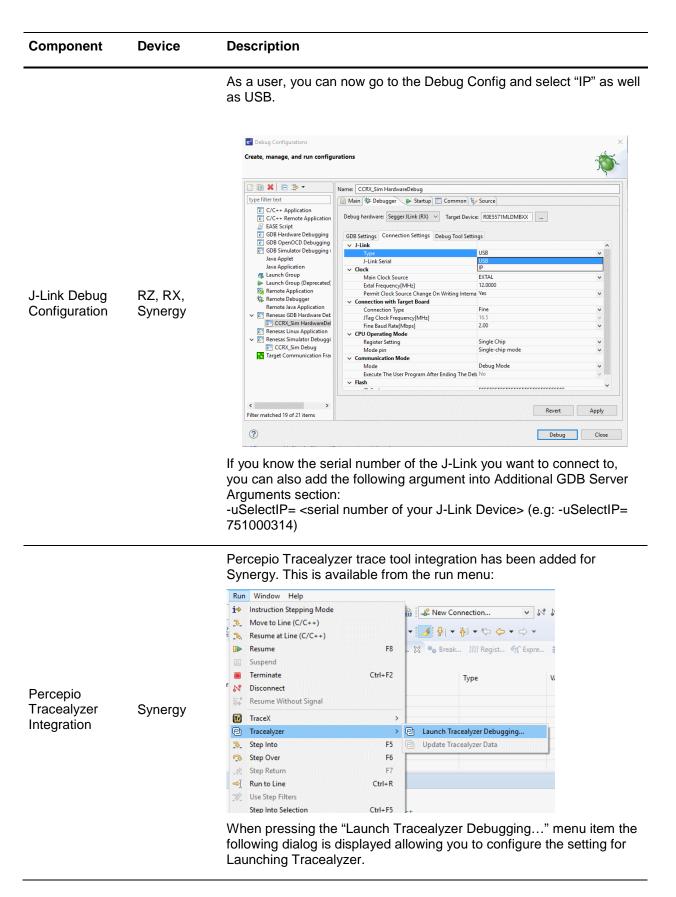
Smart manual support is delivered independently of e² studio releases when available. The following devices are available as of April 2019:

- RX62G
- RX62T
- RX63N
- RX63T
- RX64M
- RX71M
- RX110
- RX111
- RX113
- RX210
- RX220
- RX631
- RX651
- RX65N
- RX24U
- RX24T
- RX66T
- RL78/L12
- RL78/L13
- RL78/G14
- RL78/G13
- RL78/G12
- RL78/G11
- RL78/G10
- RL78/G1F
- RZ/A2M



e² studio 7.4.0

4. What is new in 7.4.0?





e ²				\times
Tracealyzer Debug			Ē	Ð
Buffer Start Address:			~	
Buffer Size (bytes):			~	
Tracealyzer Path:				
Update Existing Fil	e			
?		ОК	Cancel	

When debugging Synergy ThreadX projects with many threads, it is now possible to achieve faster debugging by enabling the RTOS Debugging - Large Number of Threads option under Debug Tool Settings > RTOS.

Enabling this option will show only the current thread and the main thread as suspended and report the non-executing threads as still running.

The information on other threads can be seen after manually suspending them. (Selecting the thread and clicking on the suspend button.)

		e ² Debug Configurations			
		Create, manage, and run configu	rations		Ś
vnergy Debug onfiguration	Synergy	Image: Second Secon	GDB Settings Connection Settings Debug Tool Set Break Use Flash Breakpoints Allow Simulation Flash Use CFI-Flash WorkRam Start	No No No No No	× *
		Kemote Application Kemote Debugger Remote Java Application C. Renesses GDB Hardware Det CCRX Sim Hardware Det CCRX Sim Hardware Det CCRX Sim Data Simulator Debuggi CCRX Sim Debug	WorkRam End CFI Start CFI End Semihosting breakpoint address RTOS Integration in Debug View RTOS Integration in Debug View	0x0 0x0 0x0 Ves No	515 515 515
		Target Communication Frai	RTOS Debugging - Large Number of Threads.	Yes Yes	*
		Filter matched 19 of 21 items	[<u></u>	Re⊻ert Debug	Apply

Smart Configurator	RZ	
Configurator		

The clock GUI for the RZ/A2M device has been improved to grey out the result of clock, Octa/Hyper/SPI to external pins are clearly displayed, and initial value of CKIO is updated for most of use cases



		CKIO behaviour when CLK bad Unstable Output Output clock enable (Normal Mode / Software Standby / Deep Standby) Output / Output Off(Hi-Z) / Output Off(Hi-Z) * Octa memory controller clock (OCTCLK) 220.0 (MHz) POq POq Bq POq POq POq SPI multi I/O bus controller clock (SPICLK) PIq POq SPI multi I/O bus controller clock (SPICLK) PIq POq SPI multi I/O bus controller clock (SPICLK) (MHz) POq SPI multi I/O bus controller clock (SPICLK)
RH850 Device		Software component now have more flexibility to specify generated location, C/Assembly include path setting and library setting. For example software components can define that r_ostm is generated under "generate/sc_drivers" and fatfs is generated under "src"
Support	RH850	RH850/F1KM-S4: R7F701652, R7F701653
MMU View	RZ	The MMU view has an improved function in the area of saving the MMU view's data. The following information is now output to the saved data file: • Project Name • Project Path • Target Device
		"Device Memory Usage" panel in Memory Usage view now supports the RZ/A1M and RZ/T1 with e ² studio 7.4.
		Already supported device is shown below.
Memory Usage	RZ	 RL78 RX other RZ/A and RZ/G2M Synergy

RENESAS

)			
Smart Configurator	RX	Smart Configurator has been (RAM 128Kbytes) group devi		T and RX66T
		Now you can get hardware m device of installed toolchains project for that device.		
		By using the newly added "G to the list of all available devir		u can access
		Smart Browser 😒	· 축 출 왕 �	13 2 2 2 - □
		Device: R5F51101(RX110)	Last updated: 2019/04/04 at 13:15:22	
		Context Help User's Manual Technical Update Application		
		79 matches	e ² Select a device —	
		Title		Date Remarks ^
Smart Browser	AII	Inte UPP RX Smart Configurator User's Guide: e2 studio NE RX Smart Configurator User's Guide: IAREW List of MCUs supported by Renesas Flash Programme Smart Configurator for RX V2.0.0 Release Note List of MCUs supported by PG-FP6 e2 studio V7.3.0 Release Note RTEDT00020KCA10000R User's Manual (20-Pin (1.27- PG-FP6 V1.03 Flash Memory Programmer User's Manual PG-FP6 Flash Memory Programmer Release Note RX Compiler CC-RX V3.01.00 Release Note RX Compiler CC-RX V3.01.00 Release Note RX Compiler CC-RX V3.01.00 Release Note RX Compiler User's Manual e2 studio V7.2.0 Release Note CC-RX Compiler User's Manual e2 studio V7.1.0 Release Note List of MCUs supported by PG-FP5 Parameter Files for PG-FP5 Release Note	Device ↑ 119 > ● RL78 ▼ ● RX ■ 110 ■ R5F51103 ■ R5F51104 ■ R5F5104 ■ R5F5104 ■ R5F5104 ■ R5F5104 ■ R5F5104 ■ R5F51	VDIE Kemarks 7 /01/25 /01/25 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/21 /01/25 /01/25 /01/25 /01/25 /01/25 /01/25 /01/25 /01/25 /01/25 /01/25 /01/21
Semi-hosting		Semihosting tutorials and hel Covering the usage of ARM s By using ARM semihosting, s	semihosting with RZ/A1.	ctions such as
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio	semihosting with RZ/A1. standard input / output func- ns can be used for debugg	ctions such as ging purposes.
Semi-hosting Help	RZ	Covering the usage of ARM s By using ARM semihosting, s	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide	ctions such as ging purposes.]/ [Debugging
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio Please refer to the help conte Projects]/[ARM Semihosting method.	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can	ctions such as ging purposes.]/ [Debugging cific operation
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting method.	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec	ctions such as ging purposes.]/ [Debugging cific operation
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio Please refer to the help conte Projects]/[ARM Semihosting method. Now with RX Simulator, you Get coverage result of Source Coverage Data Coverage	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can of source file without add a	ctions such as ging purposes.]/ [Debugging cific operation
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio Please refer to the help conte Projects]/[ARM Semihosting method. Now with RX Simulator, you Get coverage result of Source Coverage Data Coverage Projects	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can	ctions such as ging purposes.]/ [Debugging cific operation
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of Get coverage result of Source Coverage Data Coverage Projects	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can of source file without add a	ctions such as ging purposes.]/ [Debugging cific operation
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of Get coverage result of Source Coverage Data Coverage Projects	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can of source file without add a	ctions such as ging purposes.]/ [Debugging cific operation address range.
-	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of Get coverage result of Source Coverage Data Coverage Projects	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec- can of source file without add a	ctions such as ging purposes.]/ [Debugging cific operation
lelp		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects Source Files Source Files Source Files CCRX.c Address Ranges	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results	ctions such as ging purposes.]/ [Debugging cific operation address range.
lelp	RZ	Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects • Source Files • CCRX.c ■ Address Ranges • Get coverage result of	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results	ctions such as ging purposes.]/ [Debugging cific operation address range.
lelp		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects Source Files Source Files Source Files CCRX.c Address Ranges	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results	ctions such as ging purposes.]/ [Debugging cific operation address range.
-		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of Get coverage result of Source Coverage Data Coverage Projects CCRX.c Address Ranges Get coverage result of Source Coverage Data Coverage Projects	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results	ctions such as ging purposes.]/ [Debugging cific operation address range.
lelp		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help contect Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects ************************************	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results 100.00 %	ctions such as ging purposes.]/ [Debugging cific operation address range.
lelp		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help contect Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects ************************************	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results 100.00 % of address range	ctions such as ging purposes.]/ [Debugging cific operation address range.
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lelp		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operatio Please refer to the help conter Projects]/[ARM Semihosting of method. Now with RX Simulator, you of • Get coverage result of Source Coverage Data Coverage Projects • Secret Coverage Data Coverage • Get coverage result of Source Coverage Data Coverage • Get coverage result of Source Coverage Data Coverage Projects • Source Files • Source Files • Source Files • Source Files • Source Files • Source Files	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results 100.00 % of address range	ctions such as ging purposes.]/ [Debugging cific operation address range.
Help		Covering the usage of ARM s By using ARM semihosting, s printf, scanf, and file operation Please refer to the help contect Projects]/[ARM Semihosting of method. Now with RX Simulator, you of Get coverage result of Source Coverage Data Coverage Projects Source Files CCRX.c Address Ranges CCRX.c Source Coverage Data Coverage Projects Source Coverage Data Coverage Projects Source Coverage Data Coverage Source Coverage Data Coverage	semihosting with RZ/A1. standard input / output func- ons can be used for debugg ents [e2 studio User Guide (printf debug etc.)] for spec can of source file without add a Results 100.00 % of address range	ctions such as ging purposes.]/ [Debugging cific operation address range.

5. What is new in 7.3.0?

Component	Device	Description					
		The download and import RZ/A2M peripheral drivers and middleware to e ² studio project is now supported in the Smart Configurator for RZ/A2M.					
Smart Configurator	RZ	The middleware and driver included in the RZ/A2M Software Core Package can be downloaded and imported easily using Smart Configurator.					
		For details, refer to the help topic "Smart Configurator for RZ/A2M" linked from [Help]->[Help Contents] menu in e ² studio.					
		The Memory Usage view has been updated to include the device memories of selected project's device.					
		Memory areas of device are shown on the view with their corresponding information bar and sections which belong to each memory area.					
		The color of each section corresponds to the memory group classification. The color of each group is shown on Group Size region pane of the view. For details, refer to Device Memory Usage part in the Memory Usage help.					
		■ Menoy Uspr II					
Memory Usage plugin		Ser Wency Region Usage Mency Region Usage					
		COLORE-100 Colore-100					
		Interior Charles State offense Fort adfress State fort adfress Sta					
Device Support RH850		New devices added for RH850: R7F701442, R7F701462 - RH850/E1M-S2 R7F701215, R7F701216					



Sector Manager and Sector S							
Debug Only							
3 No executable file selected for debugging				-			
Debug Hardware	Device Settings	s.)		-			
Hardware	Target Device:	R7F701002xAFF					
E1 (RH850) ~	niger bernet.	ATT STOLED		R34850 >	RH850/F1L	2	
O Simulator			Unlock Devices		RH850/R1L		
	Endian:	Little	v	1	RH850/E1L	>	
					RH850/E1M-S	>	
Device Executable					RH850/E1M-S2	>	
Executable Path:					RH850/C1H	>	
					RHB50/C1M	>	
					RH850/P1M	>	
					RH850/P1H-C	>	
					RH850/P1H-C RH850/P1M-C	3	
					RH850/P1H+C RH850/P1M-C RH850/P1M-E	3 3 3	
					RH850/P1H-C RH850/P1M-C RH850/P1M-E RH850/P1L-C	3 3 3	
					RH850/P1H+C RH850/P1M+C RH850/P1M+E RH850/P1L+C RH850/D1L1	3 3 3 3	et mand
					RH850/P1H-C RH850/P1M-C RH850/P1M-E RH850/P1L-C	3 3 3	R7F703404 87F703405
					RH850/PTH-C RH850/PTM-C RH850/PTM-E RH850/PTL-C RH850/PTL-C RH850/DTM1 RH850/DTM1))))	R7F701404 R7F701405
(?) < Back	Nest >	Finah	Cancel		RH850/P1H+C RH850/P1M-C RH850/P1M-E RH850/P1L+C RH850/P1L+C RH850/D1L1 RH850/D1L1)))))	
? <back< td=""><td>Next ></td><td>Finish</td><td>Cancel</td><td></td><td>RH850/PTH-C RH850/PTM-C RH850/PTM-C RH850/PTL-C RH850/PTL-C RH850/DTM1 RH850/DTM2 RH850/DTM2</td><td>)))))))</td><td></td></back<>	Next >	Finish	Cancel		RH850/PTH-C RH850/PTM-C RH850/PTM-C RH850/PTL-C RH850/PTL-C RH850/DTM1 RH850/DTM2 RH850/DTM2)))))))	
? (Back	Next >	Finish	Cancel		RH4550/P1H-C RH450/P1M-C RH450/P1M-C RH450/P1L-C RH450/P1L-C RH450/D1L1 RH450/D1L1 RH450/D1M1 RH450/D1L2 RH450/D1L2 RH450/D1L2	- 	
۲) حقط	Nest >	Finah	Cancel		RH4550/P1H-C RH450/P1M-C RH450/P1M-C RH450/P1M-E RH450/P1L-C RH450/P1L1 RH4550/D1M1 RH4550/D1M2 RH4550/D1M2 RH450/D1M1-V2 RH450/D1M1-V2))))))))))))	
? (Bot	Next >	finish	Cancel		RH4550/P1H-C RH450/P1M-C RH450/P1M-C RH450/P1L-C RH450/P1L-C RH450/P117 RH450/P112 RH450/P112 RH450/P112 RH450/P114 RH450/P1H-FH RH450/P1H-GW		
			Cancel		RH4550/P1H-C RH450/P1M-C RH450/P1M-E RH450/P1M-E RH450/P1L-C RH450/D1L1 RH450/D1L2 RH450/D1L2 RH450/D1L2 RH450/D1L2 RH450/D1L2 RH450/F1H RH450/F1K)))))))))))))))))))	
	Next >		Cancel		8H4550/P1H-C 8H450/P1M-C 8H450/P1M-E 8H450/P1L-C 8H450/P1L-C 8H450/P1L-C 8H450/P1L-2 8H450/P1M2 8H450/P1M4 8H450/P1H-GW 8H450/P1H-GW 8H450/P1H 8H450/P1M)))))))))))))))))))	

The "Raw" registers format has been added to the Registers view "Number Format" menu item. This new selection can be used to show the raw value of the floating-point registers.

ame	Value		Description	÷.
🛗 General Registers			General Purpose and FPU Register Group	
Select All	Ctrl+A Ctrl+C			
IIII r Number Format IIII r Find	> Ctrl+F	Hex Decimal		
Display Register As Vector Of ne : r/b Add Register Group Hex:0: Restore Default Register Groups	>	Octal Binary Float Default		>

The Page Table display in the MMU view has been improved to display not only value but also value's meaning.

The view now also displays more information:

MMU 🛛			🖃 🗳 🔕 🖽	
rget : Virtual a	ddress 🗸 Address :	~	Search	
Number	XN	Domain	NS	Raw data[31:0]
3710	Execute never(XN=1)	Domain15(1:Client)	Non-secure(NS=1)	0xE7D801F2
3711	Execute never(XN=1)	Domain15(1:Client)	Non-secure(NS=1)	0xE7E801F2
3712	Execute never(XN=1)	Domain15(1:Client)	Non-secure(NS=1)	0xE7F801F2
3713	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8000DF2
3714	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8100DF2
3715	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8200DF2
3716	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8300DF2
3717	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8400DF2
3718	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8500DF2
3719	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8600DF2
3720	Execute never(XN=1)	Domain 15(1:Client)	Secure(NS=0)	0xE8700DF2
3721	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8800DF2
3722	Execute never(XN=1)	Domain 15(1:Client)	Secure(NS=0)	0xE8900DF2
3723	Execute never(XN=1)	Domain15(1:Client)	Secure(NS=0)	0xE8A00DF2
2794 2	Everyte never(YN-1)	Domain15(1+Client)	Secure/NS-0)	OVERROODE2

MMU View

CDT



Improve point is following table.

improvo point io					
Column Name	Improvement				
Domain	Add corresponding DACR register's value's meaning.				
S,NS,XN,NG,AP[2:0]	Add value's meaning.				
Raw data[31:0]	Add this column for page table entry 32bit descriptor's raw data.				

The MMU view has been updated to allow the customization of saved MMU settings.

	e ² Save MMU settings X					
	File name(*.csv) Browse.					
	Range of entry number to save (decimal value) Image 1 - 4096					
	Select columns to save					
	Save all columns					
	🗹 Entry Type 🗹 Virtual/Start Address 🗹 Physical Address 🗹 Memory Type					
MMU View	✓ TEX[2:0] ✓ C ✓ B ✓ Domain					
	☑ AP[2:0] ☑ XN ☑ S ☑ nG					
	☑ NS ☑ Raw data[31:0]					
	Save CP15 register					
	Save secondary page table entry					
	OK Cancel					
	Setting items are as follows:					
	What range of entries to save.					
	What page table's columns to save.					
	Whether we save the CP15 register or not.					
	Whether we save secondary page table entries.					
Debugging RX,	e ² studio 7.3 has improved I/O library support to work with both the RX hardware and simulator debugger configurations.					
Project	Improvement points:					
Generation						
CCRX	+ Changed "Use I/O library" label to "Use Renesas Debug Virtual Console" label					



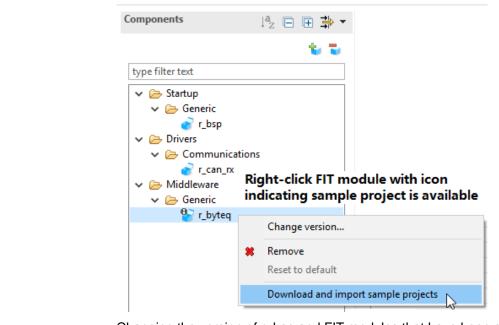
ew Renesas	CC-RX Executable Project
Settings The C	Contents of Files to be Generated
What kind of i	initialization routine would you like to create?
Use Rene	sas Debug Virtual Console
Number of I/	/O Streams:
20	A

+ Excluded "lowIvI.src" and "lowsrc.c" on Release configuration + Specified "-define=DEBUG_CONSOLE" on HardwareDebug and Debug configuration

These changes will enable the Renesas debug Virtual Console to be used more effectively within e² studio for all RX debugger configurations.

Download and import sample projects of FIT modules to the e² studio project workspace is now supported in the Smart Configurator.





Changing the version of r_bsp and FIT modules that have been added to the Smart Configurator project is now also supported in Smart Configurator.

Smart

Configurator

Software component configuration

	-	
	Components	
		10 T
	type filter text	
	 Startup Generic r_bsp Privers Communica r_can_rx Middleware Generic r_byteq 	
		Reset to default
		Download and import sample projects
i S Libhover	nvokes for calls thre Synergy API function a function call. Activates: g_sf_i2c_ Does not activate: g	er functionality for Smart Manual Software only ough function pointer struct members (e.g. typical on calls) and is only activated if the code looks like _device0.p_api->open() g_sf_i2c_device0.p_api->open oved to now activate on non-dereferenced function
GDB server	gdbserver console a ■ Version of f ■ Emulator ty Available no ■ Console 23 ■ 2	: little : on ion '2.09.00.003' pin) : little w. 2.09.00.009 1.00.00.000 2.09.00.000 2.09.00.000 26 00 1C E20 Rev.2 3.3 V 4.2 V 38-pin cable



The Debug Console view can have the pin button set to "on", this brings the console to the front if there are standard input/output changes in the console. **Debug Console** For details, refer to "RenesasDebug Virtual Console operations" plugin section in "Renesas Debug Virtual Console" help. 🙀 🐴 🖉 7 1 1 10 F.A. The Smart Configurator has been updated to support RX23T, RX24T, RX24U group devices. - D MCUPackage 11 E MM (iii) RX23T.scfg 11 Pin configuration 1 E + 2 2 Hardware Re_ 📄 🖻 🖓 💩 28844 Al Smart Configurator RENESAS You can select the message categories that you want to receive the notification. If the checkbox of a category is unchecked, you will not receive new message of that category. e² Preferences (Filtered) \times type filter text R Smart Browser Setting ✓ C/C++ Region setting ✓ Renesas Smart Browser Americas \sim Refresh interval Once a week Every day ○ None My Renesas Smart Browser Enter My Renesas account again. Do not store account information HTTP connection Timeout (sec): 180 Hints and Notifications polling setting C Enable automatic news polling Notifications setting Message saving period (day): 15 Available categories: Renesas News Community News Restore Defaults Apply ? 🔘 Apply and Close Cancel When using multicore debug, it is now possible to filter the breakpoint Application

for core automatically. This is achieved by the following toolbar button on the Breakpoints view.

Debug Configuration



After pressing this button, it will lock the breakpoints to only be sent to the active debugger session.

A GUI has implemented for editing the IO Register settings.

It has been made more convenient, so you can modify within the user interface directly.

Address	Size	Value	
0x8c103	1 byte	0xff	
0x83872	4 bytes	0x0000ffff	
0x80006	2 bytes	0x5a03	
Address (hex)	Size (hex) Va	lue (hex)	
	1 byte V		
inter valid he	adecimal values		
Insert	Remove R	emove All Sections	

FreeRTOS project is supported for specific RX devices.

If user does not download FreeRTOS package into local PC yet, the e² studio project generator can download the FreeRTOS package from the Renesas website in the same way as FIT module downloads.

		A COLORED OF COLORED O	
		8	- 0 ×
		New Renause CC-XX Executable Project Select Institute, device & Adug settings	
Smart Configurator	RX	Tushan Settyp Lagung RC ⊖C++ Tushan ResearC00 Tushan too G00 Too Rest00 Ros Rest00 Data Settyp	4 × 1
0		Tept Dever PDTPMC/C	
		March 1	
		feder 18te	* Coste Debug Configuration
		Poper Type (Introd	N Serulater -
			Coate National Configuration
		T (90)] But - Evan Canad

Smart Configurator also supports FreeRTOS kernel configuration.



You can the configure FreeRTOS kernel within the user interface and then the Smart Configurator can generate the FreeRTOS kernel settings header file automatically.

Property	Value
Configurations	
# configUSE_PREEMPTION	0
# configUSE_IDLE_HOOK	1
# configUSE_TICK_HOOK	1
# configTICK_RATE_HZ	1000
configMINIMAL_STACK_SIZE	140
<pre># configTOTAL_HEAP_SIZE</pre>	46080
# configMAX_TASK_NAME_LEN	12
# configHSE TRACE FACTLITY	1



Component	Device	Description
RX Device Support	RX	Support has been added for the RX66T device. This includes support for the Smart Configurator.

6. What is new in 7.2.0?



7. What is new in 7.1.0?

- Styles	s now supported in e ² studio.	RZ	RZ/A2
Styles	- C X V C/C++		
	_		
	✓		
	✓		
	Configurations		
	Create Hardware Debug Configuration		
	c → EC-1 → M → RZ/A → RZ/A1H →		
	RZ/T > RZ/A1L > RZ/A1LC >		
	RZ/A1LU > RZ/A1M >		
	RZ/A2M > RZ/A2M - 176pin		
	RZ/A2M - 256pin RZ/A2M - 272pin		
4pin > R7S92104 R7S92105	Next > Finish Cancel		
edded softwa	drivers for clocks, pins and me that are a basic part of embedde can be configured within the Si		Configurator Support
	d using a dedicated user interfa ated is reflected in your project's		
	nel		
51 🗠			
141			
100	Chicago Ind		
	OP cost tot L32 IMM Mag processing dock Dpt (Abg Mag processing dock Dpt		
	183 New Integrational data Sub New 1843 New 1843 New 1843 New 1843 New 1843 New 1843 New 1845 New		
te	a can be configured within the d using a dedicated user inter ated is reflected in your project		



Pin Configuration Panel

² in Numb	er							
Filter by p	oin name							
Pin Nu	Pin Name	Function	Directi	Output L	Interru	Drive Co	Initialize	Remark A
A10	PE_6/ET0_MDIO/VIO_D2/SSIRxD0/	" PE_6	1	None	/ Disa	None	By GPL	10
A11	PL_2/MD_BOOT2/IRQ6	1 PL_2	1	None	/ Enabl	None	By GPI	1
A12	PE_5/ET0_MDC/VIO_D3/SSITxD0/M	' PE_5	1	None	/ Enabl	None	By GPI	
A13	P8_4/A4/DV0_DATA13/SSL00/SSIR	/ DV0_D	1	None	/ Disa	None	By GPI	
A14	P8_6/A6/DV0_DATA11/MOSI0/SSIL	' DV0_D	1	None	/ Disa	None	By GPI	
A15	PE_4/ET0_CRS/VIO_D4/SSILRCK0/	ETO_CRS	1	None	/ Disa	None	By GPL	
A16	P9_1/A9/DV0_DATA8/RxD4/SSILRC	" DV0_D	1	None	/ Disa	None	By GPL	
A17	PVcc	PVcc.						Read or
A18	Vss	Vss.						Read or
A19	PE_1/ET0_RXD0/VIO_D7/RxD2/POE	' PE_1	10	/ High	None	4mA	By GPI	
A20	PA_4/A20/DV0_DATA9/LCD0_DATA	/ DV0_D	1	None	/ Disa	None	By GPI	
A21	CKIO	/ Not assi	None	-	-	-		
A22	Vss	Vss						Read or v
<								>

MMU Configuration Panel

Use N	MU Configuration								1
Page Ta	ble								
Name	Virtual Address	Physical Address	Size	Attributes	NS	AP[2:0]	XN	Add	
	0x0C000000	0x0C000000	0x4000000	Normal	Non-sec	Read/Wr	Executa	Remove	
	0x18000000	0x18000000	0x7000000	Reserved	Non-sec	Access i	Execute		
	0x1F000000	0x1F000000	0x1000000	Strongly	Secure (Read/Wr,	Execute	Edit	
	0x20000000	0x20000000	0x100000	Normal	Non-sec	Read/Wr	Executa		
	0x30000000	0x30000000	0x100000	Normal	Non-sec	Read/Wr	Executa	Import	
	0x40000000	0x40000000	0x100000	Normal	Non-sec	Read/Wr	Executa		
	0x50000000	0x50000000	0x100000	Normal	Non-sec	Read/Wr	Executa	Export	- 1
	0x60000000	0x60000000	0x100000	Normal	Non-sec	Read/Wr	Executa		
	0x70000000	0x20000000	0x100000	Strongly	Non-sec	Read/Wr	Execute		
	0x80000000	0x80000000	0x400000	Normal	Non-sec	Read/Wr	Executa		
	0x82000000	0x80000000	0x400000	Normal	Non-sec	Read/Wr	Executa		
	0x94000000	0x0C000000	0x4000000	Normal	Non-sec	Read/Wr	Executa		
	0xA0000000	0x30000000	0x100000	Strongly	Non-sec	Read/Wr	Execute		
	0x80000000	0x40000000	0x100000	Normal	Non-sec	Read/Wr	Executa		
	0xC0000000	0x50000000	0x100000	Stronaly	Non-sec	Read/Wr	Execute		

Software Component Settings: The drivers for peripheral functions that are used in sample programs can be configured on the smart configurator.

The available configuration depends on each specific driver and the configuration when generated is reflected in your project's source code.

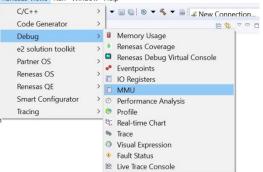
Software Component Configuration Panel (Example: SCIFA driver)

omponents 🛛 🗄 🖻 🗷 🆈 🔻	Configure		
type filter text	Property	Value	^
Y 🗁 Drivers	# SCIFA communication modes	Asynchronous mode	
Communications	# SCIFA Bit Rate (bps)	115200	
💣 scifa0	# Clock select	Internal clock input	
	# Asynchronous Base Clock Select	Use clock as 16x mode	
	# Data Bit Length	8 Bits	
	# Parity Enable	Unused	
	# Parity Mode	Even Parity	
	# Stop Bit Lenght(s)	1 bit	
	# Noise Cancellation	Unused	
	# Data Transfer Direction Select	LSB-first	
	# Loop back test	Unused	
	# Modem Control Enable	Unused	
	# RTS# output active trigger numb	15	~
	Macro definition: SCIFA_TX_DATA_MOD	DE	0



studio 7.4.0		Release
MMU View	RZ	RZ/A1 and RZ/A2 both support a memory management unit (MMU) which needs special debugging support. When using MMU, it is necessary to prepare a page table in the memory in addition to setting the MMU register.
		The page table for MMU of RZ/A1 and RZ/A2 is composed of a combination of a primary table and a secondary table. In each page table entry, it is necessary to make the following setting.
		 Physical address corresponding to the virtual address Enable/disable of data cache and cache operation (write back, write through, etc) Specification of memory type (normal memory, device memory, strong reorder memory) Access permission (permission to read / write in privileged mode / non-privileged mode)
		To support this feature of the RZ/A1 and RZ/A2 devices a new plugin has been added to e^2 studio named the MMU view.

Renesas Views Run Window Help



The view is accessible from the [Renesas Views->Debug->MMU]	
menu item.	

Number	Entry Type	Virtual/Start Address	Physical Address	Memory Type	TEX[2:0]	C	B	Domain	AP[2:0]	XN	s	nG	NS	1
921_1	Small Page	0x39800000	0x00000000	Strongly Order	000	0	0		000	0	0	0	-	
y 931	Page Table	0x20037000	•					0	1. Contraction of the second s				0	
931_1	Small Page	0x3A200000	0x00000000	Strongly Order	000	0	0		000	0	0	0	-	
✓ 941	Page Table	0x20038000	•		+			0			-		0	
941_1	Small Page	0x3AC00000	0x00000000	Strongly Order	000	0	0		000	0	0	0		
y 951	Page Table	0x20039000			+			0					0	
951_1	Small Page	0x38600000	0x00000000	Strongly Order	000	0	0	-	000	0	0	0	-	
✓ 961	Page Table	0x20035000			-			0					0	
961_1	Small Page	0x3C000000	0x00000000	Strongly Order	000	0	0	-	000	0	0	0		
✓ 971	Page Table	0x20036000						0				-	0	
971_1	Small Page	0x3CA00000	0x00000000	Strongly Order	000	0	0		000	0	0	0	-	
✓ 981	Page Table	0x20037000						0			-		0	
981_1	Small Page	0x3D400000	0x0000000x0	Strongly Order	000	0	0		000	0	0	0	-	
✓ 991	Page Table	0x20038000						0			÷		0	
991_1	Small Page	0x3DE00000	0x00000000	Strongly Order	000	0	0		000	0	0	0		
✓ 1001	Page Table	0x20039000			-	-		0			-		0	
1001_1	Small Page	0x3E800000	0x0000000x0	Strongly Order	000	0	0		000	0	0	0	-	
1007	Section	0x3EE00000	0x0000000x0	Strongly Order	000	0	0	0	000	0	0	0	0	
2031	Section	0x7EE00000	0x00000000	Strongly Order	000	0	0	0	000	0	0	0	0	
3055	Section	0x8EE00000	0x00000000	Strongly Order	000	0	0	0	000	0	0	0	0	
1070	Cartin	A. PPPAAAAA	A. AAAAAAAAA	Course of Courses	AAA	~			000	A.				

This view is intended to allow easy confirmation of the MMU IOR setting value. It also offers functionality to convert from logical addresses to physical addresses.



Run Break Timer	All	A new feature has been added to the e ² studio that enables you to understand the last execution performance.
		This offers a fast way to automatically see the last execution performance timing in the e^2 studio status bar.
		13 14 00000166 ● void main(void) 15 16 ↓ volatile int a = 0; 16 ↓ volatile int a = 0; 17 18 ● while (1) 19 20 00000169 a++; 21 0000016e a++; a=0: 22 23 00000173 ● if (a>10) 24 ● Tasks Proble Execut Smart Debug RL_Sim Debug [Renesas Simulator Debugging (RX, RL78)] Renesas GDB server (Host) Options bytes, writing to address 0x000000c0 with data ffffed4 Correct values for address 0x000000c3, Options byte settings for 0b10000100 0b10000100 0b10000101
		Security ID, writing to address 0x000000c4 with data 0000000000 Debug monitor area 2, writing to address 0x000000ce with data cb Finished download
		< Suspended Ox0000016e 31 ns Accurate
		Current PC Last execution timing (time or cycles) Accuracy of measurement or method used.
		The view shows the current program counter (PC), the last execution timing either in time or CPU cycles and the accuracy or measurement method used.

Device	Debugger	Support
	Simulator	Not supported
RX	E1/E20/E2/E2 LITE	Emulator is used to read the total time measurement counter (Hardware support)
	EZ/J-Link	System Time
RH850	E1	Debug Clock (CPU clock is used if the Debug Clock is 0)
Synergy S1 Series (Cortex M0/M0+)	J-Link	System Time
 Synergy S3, S5, S7 Series	J-Link	Data Watchpoint and Trace Unit – Cycle Count and



		number of overflows calculated using the System Time
RZ	J-Link	Performance Monitoring Unit – Cycle Count and number of overflows calculated using the System Time
	Simulator	Accessing the simulated hardware timer resources.
RL78	E1/E20/E2/E2 LITE	Emulator is used to access the timer resources of hardware.

Device Migration All

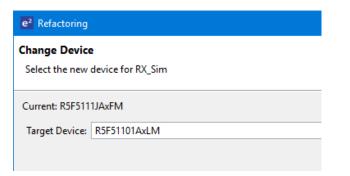
A new device migration feature has been added to e² studio. This enables an easier method for you to transition from one device to another.

The migration is possible from one device to another within the same series. For example, you can migrate from a RX62N to a RX65N. You cannot migrate from one device family to another. E.g. RX to RZ.

The Change Device feature is available on the project pop-up and the Project menu item via the "Change Device" menu item.

陷 Project Explor	er 🛛		🖃 😫	\bigtriangledown	Proj	ect Renesas Views	Run Window	Help	
> 🞏 RL_Sim > 📂 RX_Sim [!	Debu	-1		ĺ	Pioj	Open Project	Kun Window	neip	
/ <u>[]</u> IX_3III [New Go Into	>			Close Project Open Synergy Config	uration		
					010	Build All	Ct	trl+Alt+B	sta
		Save build settings report				Build Configurations Build Project		> Ctrl+B	
		Change Device				Build Working Set		>	L
	** •	Run C/C++ Code Analysis System Explorer				Clean Build Automatically			
	65.	Command Prompt		Ŀ		Build Targets		>	L
		Configure	>			C/C++ Index		>	L
	_	Properties A	lt+Enter		e ²	Update All Dependen Change Device	cies	Alt+D	
						Properties			

Once selected a wizard is displayed leading the user through the migration process. The first page allows you to choose the new device.





Any possible problems will be displayed on the next page of the wizard. In most circumstances the wizard will report no errors.

Note, once has been competed it cannot be undone so please ensure you have backed up your files before invoking this operation.

e ² Refactoring			×
Change Device Review the information provided in the list below. Click 'Next >' to view the next item or	'Finish'.	. Br	
Found problems		ł) ŵ
(d) This change cannot be undone. Please make sure you backup this project before con	tinuing.		
No context information available			

The next step of the wizard allows you to choose exactly what is being migrated. It gives fine control over migrating the debugger launch configuration, build settings and project files.

e ² Refactoring	_		×
Change Device The following changes are necessary to perform the refactoring.			
Changes to be performed Image: State of the second secon		₽ ଫ ∣	→ →1
✓ ✓ ♦ Launch Configurations ✓ ♠ RX_Sim Debug			
 > > ✓ ♦ Project Files 			
No preview available			

Expanding the project files item shows which files are going to be generated and the differences from those in the project already. A difference tool shows the textual differences for source files when they are selected.



Refactoring	
The following changes are necessary to perform the refactoring	
hanges to be performed	· · · · · · · · · · · · · · · · · · ·
 ✓ Change Device for RX.Sim ✓ Change Device for RX.Sim ✓ Change Chan	
Compare Viewer	M 🛛 📣 🕸
<pre>ument 41 void (*const Fixed_Vectors[])(void) = { 42 //joxfffff80 43 Dummy, 44 //joxfffff84 Reserved 45 Dummy, 46 //joxfffff88 Reserved 47 Dummy, 56 //joxfffff80 Reserved 48 //poxfffff90 Reserved 40 Dummy, 56 //joxfffff90 Reserved 41 Dummy, 56 //joxfffff90 Reserved 42 Dummy, 56 //joxfffff90 Reserved 43 Dummy, 56 //joxfffff90 Reserved 44 Dummy, 56 //joxfffff90 Reserved 44 Dummy, 56 //joxffff90 Reserved 44 Dummy, 56 //joxfff90 Reserved 56 Dummy, 56 Dummy, 56 //joxfff90 Reserved 56 Dummy, 56 Dumm</pre>	New 40//;0xfffff60 41 #ifdef _BIG 41 #ifdef _BIG 42 (fp)&xFFFFFFF8, // big 43 #else 43 #else 44 (fp)&xFFFFFF8, // little 45 #endif 45 #endif 45 //;0xffffff84 Reserved 47 Dummy, 48 //;0xfffff88 0F51 49 (fp)&xFFFFFF6,

Some look and feel improvements have been made to the newly detected toolchains dialog. In particular there is now a Select all and Deselect all button.

		e ²	– – ×
		Toolchain Integration ① New toolchains available for integration	C
		Toolchain Registry	
		Toolchain Type	Installation Path
		✓ 🖂 GCC ARM Embedded	
		GCC ARM Embedded - 4.9.3.20150529	C:\Program Files (x86)\GNU Tools ARM Embedded\4.9 2015g3\
		GCC ARM Embedded - 6.3.1.20170620	C:\Program Files (x86)\GNU Tools ARM Embedded\6 2017-g2-up
		✓ ✓ KPIT GNUARM-NONE-EABI Toolchain	
		KPIT GNUARM-NONE-EABI Toolchain - v16.01	C:\Program Files (x86)\KPIT\GNUARM-NONEv16.01-EABI\arm-nc
		✓ ✓ Renesas CCRL	-
		Renesas CCRL - v1.04.00	C:\Program Files (x86)\Renesas\RL78\1_4_0\
Toolchain	All	Renesas CCRL - v1.05.00	C:\Program Files (x86)\Renesas\RL78\1_5_0\
management		✓ ✓ Renesas CCRX	
management		Renesas CCRX - v2.06.00	C:\Program Files (x86)\Renesas\RX\2_6_0\
		Renesas CCRX - v2.07.00	C:\Program Files (x86)\Renesas\RX\2_7_0\
		Renesas CCRX - v1.02.01	C:\Program Files (x86)\Renesas\Hew\Tools\Renesas\RX\1_2_1\
		V Linaro	
		Linaro - 4.8.3.20140401	C:\Program Files (x86)\Linaro\gcc-linaro-arm-linux-gnueabihf-4.
		V KPIT GNURX-ELF Toolchain	¥
		<	>
		Select all Deselect all Enable 'Toolchain integration' on startup	Register Cancel
		been updated. The "Installation F	
			aur can now be copied to the
		clipboard.	



pe filter text	Renesas Toolchain Management	⟨¬ ▼ ¬
Emulator ^	Scan for installed toolchains on star	tun
Launch Settings	Disable warning if no toolchains are	
Logging	-	
Renesas Toolcha	Toolchain Type	Installation Path
Smart Browser	V GCC ARM Embedded	
> Smart Configura	6.3.1.20170620	C:\Program Files (x86)\GNU Tools ARM Embedded\6 2017-q2-update\
Smart Demo	4.9.3.20150529	C:\Program Files (x86)\GNU Tools ARM Embedded\4.9 2015q3\
> Smart Manual	V KPIT GNUARM-NONE-EABI To	olchain
Synergy Configu	✓ v16.01	C:\Program Files (x86)\KPIT\GNUARM-NONEv16.01-EABI\arm-none-eabi\arm-none-eabi
Synergy License	✓ ✓ Renesas CCRL	
TraceX	✓ v1.05.00	C:\Program Files (x86)\Renesas\RL78\1_5_0\
Task Tags	✓ v1.04.00	C:\Program Files (x86)\Renesas\RL78\1_4_0\
Template Default Va	V Renesas CCRX	
Help	v2.07.00	C:\Program Files (x86)\Renesas\RX\2_7_0\
Install/Update	✓ v2.06.00	C:\Program Files (x86)\Renesas\RX\2_6_0\
Java	V1.02.01	C:\Program Files (x86)\Renesas\Hew\Tools\Renesas\RX\1_2_1\
Library Hover	V Linaro	
LinkerScript	4.8.3.20140401	C:\Program Files (x86)\Linaro\gcc-linaro-arm-linux-gnueabihf-4.8-2014.04\
MCU	KPIT GNURL78-ELF Toolchain	
Oomph	V GCC for Renesas RX	
Remote Development	4.8.4.201701	C:\Program Files (x86)\GCC for Renesas RX 4.8.4.201701-GNURX-ELF\nx-elf\nx-elf\
Remote Systems	V KPIT GNURX-ELF Toolchain	
Renesas QE	V15.01	C:\Program Files (x86)\KPIT\GNURXv15.01-ELF\rx-elf\rx-elf\
Run/Debug	V GCC for Renesas RL78	
Scripting	4.9.2.201701	C:\Program Files (x86)\GCC for Renesas RL78 4.9.2.201701-GNURL78-ELF\rl78-elf\rl78-elf\
Target Explorer		
Team		
Terminal		
Tracing		Scan Add Remove

Smart Manual RX, RL

A new feature has been added to the smart manual view so that it will display the register help automatically when hovering over a register definition.

By default, this option is not switched on. It is switched on via the toolbar button on the Smart Manual view.

YSTEM.M	STPCRA.BIT.MST	ſPA28 → Go Dev	vice: RX110	
Address	s: 0008 0010h Bit:		-	
Bit	Symbol	Bit Name	Description	R/W
		Data Transfer	Target module: DTC 0: This module clock is enabled	R/W

When switched on if you hover over a register definition in the editor the view automatically switches to show the same information.



		er monagelezen a recommunicationen er et talado × Frie Edit Search Project Reneas Views Run Window Help ¶ to the four Search Project Reneas Views Run Window Help ¶ to the four Search Project Reneas Views Run Window Help
		Vier's Narval will be able to spon by pushing the open manual button in the upper right of the view.
RL78 Simulator Trace break reason	RL78	When using the RL78 Simulator and the trace capture is stopped the reason for the break is not show in the trace window. This has now been updated to show the break reason in the status column.
Synergy Editor	Synergy	<text><text><text><image/></text></text></text>
Synergy Project Exporter	Synergy	An improvement to the Synergy Project Exporter has been made to ensure you do not accidently include build directories and temporary data by default when exporting Synergy projects.



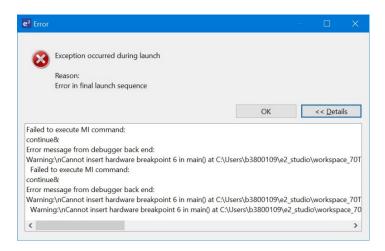
	• Synergy Export Wizard	
	Archive file Please enter a destination archive file.	
	 ✓ test6 [Debug] → .module_descriptions ✓ → .settings → Debug ✓ → script ✓ → src 	 .cproject .project .project .prS124773A01CFM.pincfg .s124-DK.pincfg .s124-DK.pincfg .s124-DK.pincfg .s126 Debug.jlink .stest6 Debug.jlink .stest6 Debug.launch
	Filter Types Select All Deselect All To archive file:	▼ Browse
	Options Save in zip format Save in tar format Compress the contents of the file	Create directory structure for files Create only selected directories
	0	Finish Cancel
Customer All include file paths	A new feature has been added by additional of multiple include paths This dialog has been modified to in option. Then when the user brows using Eclipse placeholders it scan	s. nclude the "Add subdirectories" es to a directory or enters a path
	and adds these to the build setting	js. ×
	Directory:	
	Add subdirectories	Workspace File system



8. What is new in 7.0.0?

Component	Device	Description
Synergy Headless Build	Renesas Synergy	When using e ² studio to do a headless build with Synergy it can be difficult to setup a brand-new workspace and configure the licence file location.
		This has been improved to use a command line parameter on the e^2 studio command line.
		-vmargs -Dcom.renesas.synergyLicenseFile=" <absolute file="" licence="" path="" to="">"</absolute>
Debugger	All	Breakpoint error handling has been improved in this version of e ² studio. The reason for breakpoints not being set is more clearly shown in the source window.

If breakpoints fail on the launch of the debugger then the launch is aborted. An error is displayed and you can now see the exact reason for failure. If you then remove the breakpoint causing the problem and re-launch it should work.





-) - 3)	Renesas Synergy		er interface has been v software stacks more		avigate your
		Previously thread se	lection was a flat list w g. In this case all softw	hich only allo	
		Now the threads are entire content of a th	shown as a tree mear read or choose an ind al software stack only	ividual softwa	are stack. Whe
		In the example belov stacks are shown.	v the user has selected	d the thread a	and 3 software
		i resetprg.c i RX111.c @ *[Synergy] Synerg	y Configuration 🕸		• c 0
		Threads Configuration			Generate Project Conter
		Threads € New Thread € Remove ∈			New Stack > 10 Remove
		∉ g_elc ELC Driver on r_elc ∉ g_ege CGC Driver on r_ege ∉ g_fmi FMI Driver on r_fmi ∉ g_ioport I/O Port Driver on r_joport	g_spi0 SPI Driver on r_rspi	g_ctsu0 CTSU Driver of r_ctsu	g_flash0 Flash Driver on r_flash_hp
		Binky Thread Binky Thread Binky Thread Binky Thread Diver on r_sci_j2c Diver on r_sci diversed Spi Driver on r_sci diver on r_sci sh, hp	⊕ g_transfer2 Transfer Driver on r_dtc Event SPI0 TXI ↓		
		•	v the user has selected	d the exact so	oftware stack
		and in this case only aresetprg.c B RX111.c Typergy Threads Configuration			
		le resetprg.c le RX111.c @*[Synergy]	Synergy Configuration 🛛		
		ⓐ resetprg.c ⓐ RX111.c ♥ *[Synergy] Threads Configuration	I Synergy Configuration II nove	transfer3 Transfer ver on r_dtc Event I0 RXI	
Debugger	All	G resetprg.c G RX111.c ● *[Synergy] Threads Configuration Threads Configuration Threads ● New Thread ● Rem ● g_ek ELC Driver on r_elc ● g_egc CGC Driver on r_gc ● g_mi FMI Driver on r_fmi ● g_izopot I/O Port Driver on r_isop ● Blinky Thread ● g_izol 12C Master Driver on r_sci ● g_izol 12C Master Driver on r_sci ● g_izol SPI Driver on r_fspi ● g_izol SPI Driver on r_fspi ● g_itablo Flash Driver on r_fspi ● g_itablo Flash Driver on r_sci_uart ■ Thread 3 ● g_uart0 UART Driver on r_sci_uart In older versions of ec <u>connections</u> , you need	I Synergy Configuration II nove	ing <u>multiple c</u> mbers for GE	
Debugger	All	Image: Image	synergy Configuration II ave a g.spi0 SPI Driver on r_rspi Stacks ft g_spi0 SPI Driver on r_rspi g_transfer2 Transfer Driver on r_dtc Event SPI0 TXI 0 22 22 22 23 24 24 25 24 25 25 25 25 25 25 25 25 25 25	ing <u>multiple c</u> mbers for GE	DB and ADM



3 🗟 🗶 🖻 Þ 👻	Name: Synergy Debug	
type filter text	Main Debugger Startup Common Source	
C/C++ Application C/C++ Remote Application EASE Script	Debug hardware: J-Link ARM V Target Device: R7FS7G27H GDB Settings Connection Settings Debug Tool Settings	
GDB Hardware Debugging GDB OpenOCD Debugging	GDB Connection Settings	
C GDB Simulator Debugging (I	Autostart local GDB server Host name or IP address: localhost	
Java Applet Java Application	O Connect to remote GDB server GDB port number: 61234	
Launch Group Launch Group (Deprecated)	GDB Command:	
Remote Application Remote Debugger Remote Java Application Remote Java Application Renesas GDB Hardware Debug RN111 HardwareDebug RN2 MMU HardwareDebug	arm-none-eabi-gdb	
Ka_MMU HardwareDebug Synergy Debug Renesas Linux Application Renesas Simulator Debuggir Target Communication Fram		^
		~
< >	Reve	 Apply

The "Autostart local GDB server" is the option to use for automatic port configuration.

If you need to attach to an existing already running GDB server use the "Connect to remote GDB server" and enter the first port number which was output to the console when the GDB server connects.

ce All	Trace When the Tra	capt the ace	ure deb view	pa ugo /. W	use jer i /hei	ano s ru n th	d re inni is b	-sta ng y outto	rt. /ou n is	car pre	n no esse	ow p ed t	oress the he trace	o now offer pause button on is shown within ce was paused.
	🖾 Con 😔 Ta	isks 😨 Pri	o 0 E	(ec 🤌	Sma G	B Deb	🖄 Live	🗖 Ren	🥸 Re	al 🎭	Trace ≋			O Visu 3 Ren 0 Mem □ 3 ≠ ± ⊕ 际 1 ∀ ⊕ ⊕ ⊙ 1 ♥ ⊕ ⊕ 1 ♥
	PTR Labe	Addr.	Sourc	Dest	i Data	a Size	R/A	W BU	S Tyj	pe B	CN E	Branc	Chan time	
	Running										1			≅ (⊲ ∞ ≠ × ⊙
	□ Cons ⊘ Ta Listing from rec			ec 🧇	Smar 🕯	e Debu	l⊠ Live .	🗖 Ren	e 🥸 Re	eal ee	Trace ≈	[∦] × Meas		OVisua ≋ Rene 0 Mem □
	PTR Label		Sourc	Desti	Data	Size	R/W	BUS	Turne	BCN	Branc	Chan	Time	
	-65533	FEFF			Dala	0.00	10.44	603	type		branc		7098	
						LONG	W	CPU	MEM.				7098	
		3EC												
	-65532	3FC EEEE											7098	
	-65532 -65531	FFFF					-	 CPU			······		7098	
	-65532 -65531 -65530	FFFF 3FC				LONG	R	CPU	MEM				7098	
	-65532 -65531	FFFF	······			LONG	-	CPU						~

Pressing the resume button then re-starts trace capture.

		© Cons ≥ Tasks % Probl. ♥ Exec ♥ Smar ♥ Dev ♥ Exec
Smart Manual	RL78	<text><text><text><text></text></text></text></text>
Synergy Application Project Generator for using SSP Library	Synergy	A new project type has been added for Synergy to assist you in generating an application project setup for using an existing Synergy Software Platform (SSP) library. It is available here:



All 2/C++	Renesas Synergy C Library Project A C Library Project for Renesas Synergy.	,
	Renesas Synergy C Project Using Synergy Library Creates a C application project which uses an existing Synergy library project	
	Renesas Synergy C++ Executable Project A C++ Executable Project for Renesas Synergy.	
	Renesas Synergy C++ Library Project A C++ Library Project for Renesas Synergy.	
	Renesas Synergy C++ Project Using Synergy Library Creates a C++ application project which uses an existing Synergy library project	

The library must exist in the workspace you are using. These libraries will then appear within the wizard for selection.

When selected the include paths that are required for setup are automatically displayed:

C application project to use a Synergy library project Creates a C application project which uses an existing Synergy library project
Synergy library Select Synergy library project: Synergy_Lib
Configuration: Debug ~
Linker script Select Linker script to use: script/s7g2.ld
? ≤ Back Next > Einish Cancel

When Finish is clicked then the project is created with the build setting all ready to use the Synergy library.

 RZ/A Linux
 RZ
 Linux target OS debugging is now supported. This is achievable with Ethernet and Serial connections to the target board.

 Debug
 This project type is available from the RZ Linux C/C++ project type. See below:



	e ² New Project			
	Select a wizard		-	
	<u>W</u> izards:			
	type filter text			
	 ✓ General Project ✓ C/C++ C/C++ Project Makefile Proje RZ Linux C/C+ ✓ Synergy C/C+- > ∠ Java > ∠ Tracing 	ct with Existing Code + project		
	Show All Wizards.			
	?	K <u>B</u> ack <u>N</u> ext > Einish	Cancel	
	e ² RZ Linux Project		—	⊐ × □
	RZ Linux toolchain a Select target device, to	nd project selection olchain and a template project		\rightarrow
	RZ Linux Target Device	RZ/A1H (R7S721000)		~
	Toolchains	Linaro		~
	Toolchain Version	4.8.3.20140401		~
	Project templates			
	RZ/A1H Hello W Test Project for RZ/A1	/orld C++ Project IH device		
Ensure Synergy Synergy pin structures are available as enum in properties window	available in the The generated of	ns setup in the Synergy pin properties window. data file name as listed in th Power Profile pin configurat	e pins viev	w is made
	德 *[ide20592] Synergy Config	juration 🔀		
	Pins Configuration			
	Select pin configuration S762-DK-sleep.pincfg S762-DK-sleep.pincfg S762-DK-pincfg <new configuration.<br="" default="">type filter text > ~ Ports > ~ Peripherals > Other Pins</new>	Cenerate data: g_bsp_pin_cfg_sleep2 Pin Configuration		



RZ/G Segger J-Link Debugging	RZ	Propertie: Propertie: g.sf_power_profiles_v2_low_power_0 Power Profiles V2 Low Power Profiles Settings Propertiy Value g.sf_power_profiles_v2_low_power_0 Power Profiles Vg_low_power_grofiles_v2_low_power_0 Callback (low Power Exit Event N/A when using Deep Set NULL Low power entry pin configuration table snone> Low power exit pin configuration table g.bsp_pin_cfg g.bsp_pin_cfg g.bsp_pin_cfg g.bsp_pin_cfg <t< th=""></t<>
		<text></text>
E2 Emulator Debugging	RX, RL78, RH850	E2 emulator support has been added for the RZ, RL78 and RH850 device families. Debugging function is the same as the E1 Emulator.
CCRL Compiler	RL78	The CCRL V1.07 compiler for RL78 is now supported.
Eclipse Platform & CDT		This version of e ² studio is based on Eclipse Oxygen.3 and CDT 9.4. This release note does not describe the Eclipse framework and CDT plugin issues and fixes. You can find the detailed information on the
		sites below: For information on the Neon release see here: https://projects.eclipse.org/releases/oxygen CDT: Please see New and Noteworthy for CDT here: https://wiki.eclipse.org/CDT/User/NewIn93 https://wiki.eclipse.org/CDT/User/NewIn94 The Eclipse bug tracker is here: https://bugs.eclipse.org/bugs/

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e² studio 7.4.0

Simulator RL78 Advanced Debugging	RL78	The RL78 Simulator support has been enhanced to support Profile, Trace and Coverage views.
GNU ARM Eclipse Plugins	Synergy and RZ	The GNU ARM Eclipse plugins have been updated to a newer revision. The version included is Version: 2.6.1.201806250952
i lugiilo		This plug-in is part of the GNU MCU Eclipse project. For more details, visit < <u>http://gnu-mcu-eclipse.github.io</u> >
Synergy Software Platform Network Install	Synergy	A new feature has been added which makes it much easier to install SSP in a shared network location and point your e ² studio installation at that rather than using a local install folder for the SSP pack files. This can be achieved by opening the file {{eclipse/e2studio.ini}} in a text editor and adding the following line at the end of the file: -Dcom.renesas.synergyPacksFolder=\\myServer\myPath\to\packs On start-up e ² studio will read the installed packs from this location
Synergy	Synergy	rather than the packs folder underneath the application folder. The Synergy editor has a new feature to restore the BSP properties
Editor	Cynolgy	Board Support Package Configuration Generate Project Content Restore Default SSP version: 14.0 Device Selection Device: R7F57G27H2A01CBD
Synergy Editor	Synergy	In previous versions of e ² studio, the files which hold the configuration data values for the Synergy modules were copied to the project directory in the folder .moduledescriptions. This allowed you to still use the project when the required SSP pack was not installed. However, it also increased the project directory size. From this version of e2 studio the .moduledescriptions are now stored once at an application level. If you import and existing project into the latest e2 studio it will continue to use the .moduledescriptions in your project. If for some reason this is not available or you create a new project the editor will use the application stored .moduledescriptions.
Trace	RX, RL78, RH850	 When using the trace view a new feature has been added to break the execution when the trace buffer is full. This feature is available for: RX (E1, E20, E2, E2 LITE, EZ, Simulator) RL78 (IECUBE, Simulator) RH850 (E1)



The feature is available from the trace view within the Trace Acquisition dialog:

Trace Mode:	Fill until full then break	~
Trace Output:	Fill until stop Fill until full then break	
Trace Type:	Branch+Data access	~
Trace Capacity (frames) :	64K	~
Timestamp Frequency Divider:		
Enable Timestamp Display:		
Bus Master Of Data Access:	CPU	
Start address for Access(without data)		
End address for Access(without data)		

Trace

RL78,

RH850

The find trace feature has been enhanced to fully utilise the features in the RL78 and RH850 debugger.

This functionality is available from the trace view:

	e ² Find			×
	Cycle Fetch Address FetchData Read Address Read Data Write Address Write Data TimeStamp (Count) Jump Address	Cycle 0 Range 0 Exclude		
		Find Next	Find Previous	Close
Segger J- I Link Support	The Segger J-Link debumproved to allow auton connection.			



Debug Configurations				×	L.
eate, manage, and run configur	rations			- ár	
1 🗈 🗶 🖻 🔅 🗸	Name: CCRX HardwareDebug]	
/pe filter text	Main 🗱 Debugger 🕞 Startup 💱 Source	Common			
C/C++ Application C/C++ Remote Application EASE Script		Device: R5F51115			
C GDB Hardware Debugging	GDB Settings Connection Settings Debug Too	Settings			
C GDB OpenOCD Debugging	✓ J-Link			^	
GDB Simulator Debugging (Туре	USB		~	
Java Applet	J-Link Serial	(Auto)			
Java Application	✓ Clock		-		_
🚯 Launch Group	Main Clock Source	EXTAL	e ²		
Launch Group (Deprecated)	Extal Frequency[MHz]	22.0	Select the emulator to use for this debug configurati		
Remote Application	Permit Clock Source Change On Writing Interna Yes		Select the emu	lator to use for this debi	ig configuratio
Remote Debugger	Connection with Target Board		Auto Select	4	
Remote Java Application	Connection Type	Fine	-	C	
Renesas GDB Hardware Deb	JTag Clock Frequency[MHz]	16.5	Туре	Serial Number/ID	
CCRX HardwareDebug	Fine Baud Rate[Mbps]	2.00			
C* Synergy Debug	CPU Operating Mode				
Renesas Linux Application	Register Setting	Single Chip			
Renesas Simulator Debuggi	Mode pin	Single-chip mode			
CCRL Debug	✓ Communication Mode				
CCRX Debug	Mode	Debug Mode		OK	Const
Target Communication Frai	Execute The User Program After Ending T	he Deb No		UK	Cancel
	✓ Flash		1	~	
		***************		•	
>			Revert	Apply	
er matched 21 of 23 items			Reven	Apply	
1					
?)					
			Debug	Close	

Synergy Synergy Editor – Threads Tab To improve usability the add new Synergy module functionality on the threads page has been improved. There has been a new "Search..." menu added to the "New Stack" menu hierarchy. See below:

[Synergy] Synerg	y Configuration 🕅					- 0	BE Out
Threads Configuration Generate Project Content							An outlin
Threads	New Thread Remove	HAL/Common Stacks			New Stack :	Driver	>
	mon ELC Driver on r_elc FMI Driver on r_fmi	g_elc ELC Driver on r_elc	g_fmi FMI Driver on r_fmi	g_ioport I/O Port Driver on r_ioport	g_cgc CGC Driver c r_cgc	Framework X-Ware	>
 g_ioport I/O Port Driver on r_ioport g_cgc CGC Driver on r_cgc Blinky Thread 		0	0	1	0	🖗 Search	

Clicking this menu item then opens a dialog allowing you to search and filter on the available SSP modules. In the example below, we have entered SPI and this is the result:

e ² New St	e ² New Stack					
SPI						
🗸 🏳 D	river					
× 6	> Connectivity					
	SPI Driver on r_rspi					
	SPI Driver on r_sci_spi					

In addition to this functionality a search of software stacks already created has also been implemented. This can be accessed by using the CTRL+F shortcut or [Edit->Find] menu when the Threads tab is focused. A dialog is shown with your configured stacks.

Then when you type a search condition the matching parts of the software stack are shown. Selecting the correct module and pressing the "Select" button then automatically highlights the module in the Threads Page.



Output	Ouman	e ² Find — [SP ✓ ② Blinky Thread ✓ ④ g_sf_spi_device0 SPI Framework Device on sf_spi ✓ ④ g_sf_spi_bus0 SPI Framework Shared Bus on sf_spi ✓ ④ g_spi0 SPI Driver on r_rspi ④ g_transfer0 Transfer Driver on r_dtc Event SPI0 TXI ④ g_transfer1 Transfer Driver on r_dtc Event SPI0 RXI
Synergy Debugger	Synergy	 When the Synergy debugger reaches an interrupt in older versions of e² studio the call stack within the debug view was not populated with as much information as possible. In the latest version the call stack is more complete allowing the user to see a more complete call stack in the interrupt use case.
Debug Console	All	In previous versions of e ² studio some users have struggled to find the debug console functionality. This provides support for customers to use this as a virtual serial input/output channel for RX. It is also used for semi hosting support for ARM. Previously the view was embedded within the console view of e ² studio. Now the view has been moved underneath the [Renesas Views->Debug] menu item:
		e* workspace2806 - Synergy/configuration.xml - e* studio File Edit Source Refactor Navigate Search Project Renesas Views Run Window Help Image: Source Refactor Navigate Search Project Renesas Views Run Window Help Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Source Refactor Navigate Search Project Image: Search Project Refactor Navigate Refactor N
Build Settings Report	All	The Build Settings Report has been improved to include all options and order the options in the same way as the user interface. This should enable checking the options against the report to be much easier.



	Project Explore	- X2	
	> 😂 CCRL > 😂 CCRX		
) (山) (2 号 s 2 号 s 2 号 s 2 合 s	New Go Into Open in New Window Show In	>
		Team Compare With Restore from Local History MISRA-C	> >
		Save build settings report	
Synergy S Editor	of the Synergy	port CMSIS component has be editor. This is to improve acces nent functionality when wanting	ssibility of the import
	*[Synergy] Synergy Confi Board Support Pack Device Selection SSP version: 14.0		
	Board: S7G2 DK Device: R7FS7G27F	2A01CBD	



Partner OS Improvement	All	Numerous improvements have been made to the Partner OS plugin:
		 Added ability to set thresholds and this data to then be saved and restored for future debug sessions. When stacks reach threshold or overflow, popup messages will be displayed to notify user about the stacks reaching their thresholds. Added context menu and toolbars for setting thresholds Added sort feature to the stack graph column within the stack tab.
Smart Configurator	RX	 Smart Configurator has been updated to support RX110, RX111 and RX113. In previous versions of e² studio, BSP version mismatch occurred when user downloads the newly updated FIT modules from website. From this version, Smart Configurator will be able to update BSP to the latest version. So, user can use the newly updated FIT modules with the correct BSP dependencies at ease. Importing and exporting board information has been supported. Clock and pins can be configured for specific board by importing board description file. Board description files for Renesas Starter Kit can be downloaded using Smart Configurator. Clock and pin settings modified using Smart Configurator can also be exported as user board description file.
Partner OS Improvement	All	 Numerous improvements have been made to the Partner OS plugin: Added ability to set thresholds and this data to then be saved and restored for future debug sessions. When stacks reach threshold or overflow, popup messages will be displayed to notify user about the stacks reaching their thresholds. Added context menu and toolbars for setting thresholds Added sort feature to the stack graph column within the stack tab.



9. Useful workarounds and information for 7.4.0

Please visit the Renesas FAQ for **e**² studio for the latest up to date information:

Online FAQ link.

ID	Component	Workaround or information
	Application	When using the check for updates feature within e^2 studio and updating from 7.0.x to 7.1.x the initial restart after the update fails. An error message is displayed. Subsequent launches of e^2 studio work without issue.
		This is caused by the update to Java.
	SH support	The Renesas SH device family is no longer supported in e ² studio.
		If you need to use the SH device support, please use e^2 studio 5.4 or earlier.
	Importing old projects into 6.x	All projects being migrated into the latest e ² studio from e ² studio 5.4 and earlier versions will need to be migrated to the new builder plugins. The new builder plugins have different user interface pages and different option IDs. Upon opening an older workspace, the following dialog would be displayed:
		el Older Workspace Version X
		Workspace '/C:/Users/b3800109/e2_studio/workspace54/' was written with an older version of the product and will be updated. Updating the workspace can make it incompatible with older versions of the product.
		Are you sure you want to continue with this workspace?
		Do not warn again about workspace versions OK OK

Clicking OK will update the workspace to the newer e² studio.

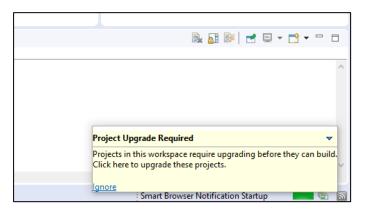
Importing an existing project to the workspace or opening a workspace with old projects will automatically start the legacy project upgrade procedure.

If for some reason this process does not start it is also possible to launch the "Upgrade Legacy of e2 studio Projects..." from the project context menu.

e² workspace54 - C/C++ - e² studio		
File Edit Source Refactor Naviga	te Search Project Renesas Views Run V	Vindow Help
🐔 🐐 🔳 🔅 Debug	CCRX_54_Project HardwareDebu	ug 🗸 🌞 🗄 🔀
월 ▼ 월 ▼ 10 ♥ (> ▼ -> ▼		
🎦 Project Explorer 🛛		
> 🚰 CCRX_54_Project [HardwareD		
	New	>
	Rename	F2
<u></u>	Import	
2	Export	
Û	Upgrade Legacy e2 studio Projects	
	Build Project	
	Clean Project	
	Refresh	F5



The automatic system pops up a message bubble in the bottom left of the e² studio application window.



After selecting the menu item or clicking the bubble the following dialog will be shown:

e ²		—		×
Upgrade Legacy e2 studio Projects				
8 You must select at least 1 project				
CCRX_54_Project [HardwareDebug]				
(?)	<u>F</u> inish		Cancel	

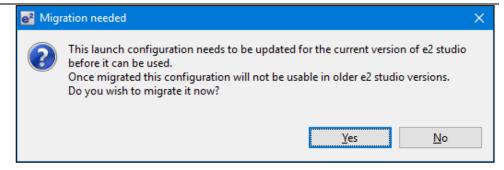
To upgrade the project, click the corresponding check box and then click Finish. Note, this will update the project to the latest build plugins and options. Before doing this, you should ensure your project is backed up as this operation is not reversible.

It is possible to upgrade multiple projects in a single operation.

For the GCC toolchains for RX, RL and GNUARM-NONE have been made to the build options which mean we cannot guarantee the same binary output after upgrade. Please consider this before upgrading.

Another consideration for migration is that debug configurations when opened in 6.0 will also need to be migrated. The following message will be displayed.





Please ensure that your projects are backed up or in revision control before migration allowing you to return to older versions if required.

ToolchainBefore e² studio 6.0 the toolchain management facility automatically upgraded orManagementdowngraded the imported project to the latest tools installed on the host
machine.

This no longer happens in the latest e^2 studio. Instead the toolchain remains the same and user operation is the only way to change the toolchain version.

This operation is now available within the build settings on the toolchain tab. An example of CCRX is shown below:

	Properties for CCRX_54_Proj	ject			
	type filter text	Settings			
	 Resource Builders C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor C/C++ General Project References Run/Debug Settings 	Configuration: HardwareDebug [Active]			
		 Tool Settings Toolchain Device Build Steps Build Artifa Current Toolchain Toolchain: Renesas CCRX Version: v2.06.00 			
RZ Toolchain		Change Toolchain Toolchain: Renesas CCRX Version: v2.06.00			
	If the particular toolchain version does not exist and build is performed, then an error message is displayed and the build will fail. The now legacy GNU ARM-NONE toolchain is still supported within the e ² studio				
	In addition RZ within e	the gnuarmeclipse plugins. e ² studio now supports the GCC ARM Embedded om <u>https://launchpad.net/gcc-arm-embedded</u> .			
	provided in the same in projects configured to	toolchain is that it does not have a standard library builder manner as the legacy GNUARM-NONE toolchain. To build use Library Generator and optlib libraries with the new Generator is required to be installed in the toolchain.			
	here:	ownloaded within the e ² studio installer or directly from om/rz/rz-download-toolchains/			
	Once integrated it is p tab of the build setting	ossible to integrate the library generator from the toolchain			



		e ² Properties for GCC_RZ				
		type filter text	Settings			
		 > Resource Builders > C/C++ Build Build Variables Environment Logging Settings Tool Chain Editor > C/C++ General Project References Run/Debug Settings 	Configuration: HardwareDebug [Active]			
			Tool Settings Toolchain Device Build Steps Build Artifact Build Artifact Current Toolchain Toolchain: KPIT GNUARM-NONE-EABI Toolchain Version: v16.01 Change Toolchain Version: Version: v16.01 Version: v16.01 Version: v16.01 Create Library generator Create Flash image			
		(libgen) is added to t	generator" option. Once checked the library generator the available tool settings.			
	QE compatibility		0.0 is used, please update it to V1.0.1. be used with e^2 studio 6.0.			
		What is QE? https://www.renesas.com/qe				
		Details of QE for TC https://www.renesas				
5954	Application		e error message "org.eclipse.swt.SWTError: No more caused by certain multi-monitor software and the Eclipse			
		If this error occurs th	nere are 2 workarounds:			
		2. Uninstall the	e monitor display. a multiple monitor software from your graphics chipset revert to the standard Windows multi-monitor feature.			
6981	RL78 Debugging		R C source file with an OCD emulator (E1), the Monitor 002-0x00003) is used.			
		the linker option.	e excluded from usable address space. Please add '-HFF' in			
		1. Open Property.				
		-	ouild]-[Settings] at left side. 78 Xlink linker' at right side, add '-HFF' at the textbox			
		'command'. Not doing this will ca interrupts.	ause problems with connection and download when using			
NA	Application	If you are experienci possibilities to impro	ing slow building of projects within e ² studio there are some ve.			
		The system environr environment. If you	ment will attempt to find the make.exe tool via the system ensure the directory make resides in is at the start of the and it more quickly. Especially important if there are network			

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e² stuc	dio 7.4.0	Release Note
		In the project properties, C/C++ Build tab, behavior tab you can switch on parallel build. This will take advantage of the multi-cores on your host machine if it has them.
NA	RZ GCC	In 3.0 the KPIT GCC RZ toolchain was supported at version 14.01. This version is no longer supported within e ² studio.
		KPIT modified the name of their ARM toolchain to be ARM-none-eabi to follow standard ARM naming convention like other GCC toolchain vendors.
		The ARM-none toolchain is available at versions 14.01, 14.02 and 16.01 from the www.gcc-renesas.com website. The binaries in the 14.01 version are identical to those used in the 14.01 RZ toolchain.
		Once the toolchain is installed your projects will be imported and ported to ensure there is as little disruption as possible due to this change.
NA	KPIT GCC	The KPIT toolchains are now no longer supported by the www.kpitgnutools.com website. Support is now available from the www.gcc-renesas.com website.
		In addition, there are two new releases for the GNU toolchains for RX and RL78. These are now named Renesas GCC for RX and Renesas GCC for RL78.
		Both integrate into e ² studio and can be selected from the project wizard.
2010	HEW	Symptoms: Project fails to build after importing a legacy project from HEW
	Importer	Conditions: If a long filename or path is used, and the HEW project importer is used, the project may fail to build.
		Workaround: Move the original HEW project to a shallow directory structure (i.e.) C:\Workspace and import from there. Also, ensure that the HEW project is relocated before importing into e ² studio.
1922	Application	Symptoms: Project fails to build in first instance after archive project import (not from HEW)
		Conditions: If an archived project is imported, it may fail to build the first time, due to a residual .d file.
		Workaround: Clean and Build a second time.
2762	CODAN	When using assembly code within a C source file, CODAN errors can be observed in the editor. Even though the project builds successfully, or even after rebuild index.
		Indexer buffer can be insufficient to process whole project. Please try giving larger values for the following configurations.
		Open preferences dialog through "Window"->" Preferences" menu. In "C/C++" -> "Indexer" tree, you will indexer configuration as shown below:



		e ² Preferences		– 🗆 X
		type filter text	Indexer	← → ⇒ → →
		 > General > C/C++ Appearance > Build Code Analysis > Code Style > Debug > Editor File Types Indexer Language Mappings > New C/C++ Project Wiz > Property Pages Settings > Renesas Task Tags Template Default Values > Help > IAR Embedded Workbench > Install// Indate 	Enable indexer Indexer options Index source files not included in the build Index unused headers Index all header variants Index all variants of specific headers: Index all variants of specific headers: Index source and header files opened in editor Allow heuristic resolution of includes Skip files larger than: 8 MB Skip included files larger thar: Skip all references (Call Hierarchy and Search will references (e.g. overloaded operators Skip type and macro references (Search for these references (;) references will not work)
2728	GDB	index.	ch red-framed variables, then rebuild p	
NA	Eventpoints	as this issue with the de If eventpoints do not all	s correctly you will need to use CC-RX 2 ebug information is corrected in this rele ways work just after they are set, you can n in the Eventpoint view to send the Ev	ease. an use the "Apply
		target manually. This v eventpoint updates before	vill always ensure the debugger target hore execution starts.	has all the required
5772	IAR Plugins	RL78, RH850 and RZ (This tool simplifies insta	er is included in e ² studio and provides ARM). allation and configuration of IAR toolcha Help -> IAR Embedded Workbench plu	ain plugins. You
6184	RL78/CC-RL debugging	please specify the follow	for RL78/G10 which created at CC-RL wing option: Set enable/disable on-chip debug by lir	
7217	Application	The restore default sett	ings does not restore all the options se sets the defaults to the base settings fo	t during project
7524	RZ/T1 Debugging	In a RZ/T1 RAM-based	project, the "Reload" function does not	work.
		Reloading or re-downlo content is erased.	ading during debugging resets the dev	ice and the RAM
		To continue the debugg	ging, disconnect and connect the debug	jger again.
	Use spaces as tabs		nave settings for use spaces as tabs. T e conflicts with the CDT formatter settin	
		To change the use spa	ces as tabs option in e² studio please u	se this page:

Release Note

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A not safet be be control and set control and set be be control and set control and set be be control and set be be be be be be be be be be	<pre>memb Totace T</pre>

	Installer problems	In some situations, the AVG virus checker appears to interfere with the e ² studio installation process. If you experience such a problem, please temporarily disable the AVG tool and try the installation again.
	Antivirus	In some situations, the Norton anti-virus tool can interfere with the building of Renesas Synergy projects. If possible, please disable the antivirus program when building Renesas Synergy projects on systems with Norton Antivirus installed.
	Green Hills RH850 Projects	When debugging the RH850 object built with the Green Hills compiler in e ² studio, specify the following option for the compiler option: -gtws
		The GUI setting menu is as follows.
		[GHS C Compiler for V800 Standalone]-[Debugging Option]
		"Generate Target-Walkable Stack" -> On
		If this option is not specified, Step Over and Step Return may not work properly.
17052	Debugging	When debugging using a project with duplicate filenames that are in different source folders problems can be seen with breakpoint setting.
		When a breakpoint is set at a source line in this file it will also stop at the same source line in the other same named file when execution passes through.
18505	RZ debugging	When debugging with RZ/T1 in certain situations you may experience problems stepping:
		If the following conditions are met:
		 Code is located close to address 0x0 There is very little library code included into the project There are unused functions in the program
		The possibility arises that the code cannot be debugged. This due togc- sections linker option which removes the unused functions but not the related debug information.
		There are several solutions to this problem: a. disablegc-sections until those functions are used b. remove the unused functions



	RZ GCC Build	In the latest e ² studio, the RZ import functionality has been improved. However, there are still possibilities of older projects causing problems when imported into e ² studio.	
		In older versions of the RZ build plugins the FPU option was not being handled correctly. When setting the "Soft" Floating point ABI the command line was still receiving –mfpu=vfpv3 incorrectly. This can now cause problems with older start-up code in older RZ projects.	
		After import if you see an error relating to this please add –mfpu=vfpv3 to the "Other Assembler Flags" page of the Assembler tool.	
		In addition, when migrating some RZ/A1 projects you may experience import problems unless you build the project in 5.4 first.	
	RZ DS-5 Project Import	When a DS-5 project is imported into e ² studio the environment variables for Path and TCInstall are copied from the DS-5 environment.	
	import	This is not correct. The way to correct this problem is to delete both paths and replace them with correct values to your toolchain. If you are unsure how to correct this please create a new project and copy the values from this to the converted project.	
	RX & RL78 GCC Project Import	When importing a KPIT RL78/RX Library C/C++ project from e ² studio 5.4 or before the build artifact settings are not correct.	
	import	The output prefix should be set to "lib" but is in fact empty.	
	RZ/G debug	In the case of debugging Linux application for RZ/G, the following error messages are shown in GDB server console when pushing [Step in] button or [Step Over] button. These messages can be ignored because the Step debugging should work properly even with these messages.	
		Examples of error messages: PassthroughTargetCommunication::sendResponse error 42 46 PassthroughTargetCommunication::sendResponse error 10 15 PassthroughTargetCommunication::sendResponse error 42 46	
21863	RX & RL Debugging	In previous releases there were some problems with stepping in some situations when using the CCRX and CCRL toolchains.	
		A fix has been made to the debug object converter. To see this improvement please clean and rebuild the project. The debug information will then be updated, and the stepping will be more correct and reliable.	
	Code Generator registration	When using multiple installations of e ² studio on your machine you may find that subsequent installations do not work correctly with the code generator.	
	registration	The effect is that the code generator cannot be created or added to projects. Existing projects can be used by the code generator views appear empty.	
		If this is the case, then the code generator must be manually registered. To do this execute the following tool:	
		e.g. C:\Renesas\e2_studip\eclipse\plugins\com.renesas.cg_2.11.0.v2018 601-1047\CodeGenerator\Tools\register COM.bat	

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25278	Synergy debugging	When loading Symbols from multiple .elf files compiled using the IAR toolchain, the user will need to add ".text" before place in FLASH_region command inside the .icf Script.
		e.g.
		".text": place in FLASH_region { block LOCK_LOOKUP, ro,
		ro section .rodata, block QSPI_NON_RETENTIVE_INIT_BLOCK, block RAM_INIT_CODE, block USB_DEV_DESC_BLK };
25273	RZ Device Migration	When changing the device from a RZ/A1 and attempting to swap to a RZ/T1 the device migration is not successful.
		The source code is not migrated successfully, and the build fails.
		This is due to the different start-up code structure between these devices.
		In this case please create a new project and copy the required source to the newly created project.
25195	RZ/A2M Smart	When creating a project of RZ / A2M, the following Warning is displayed in the Problems view for the src / renesas / configuration folder.
	Configurator	"Invalid project path: Include path not found"
		[Workaround]
		Delete the specification of this folder with the compile option include path setting.
24883	R2/A2M	RZ / A2M project generated by e ² studio does not support GCC ARM 7.x. Please use GCC ARM 6.3.



10. Open Issues in 7.4.0

Open issues in the e² studio 7.4 product will be kept up to date <u>here</u>:

Please visit to see the latest open issue list.



11. Appendix

11.1 Website and Support

Renesas Electronics Website <u>http://www.renesas.com/</u>

Inquiries

http://www.renesas.com/contact/



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