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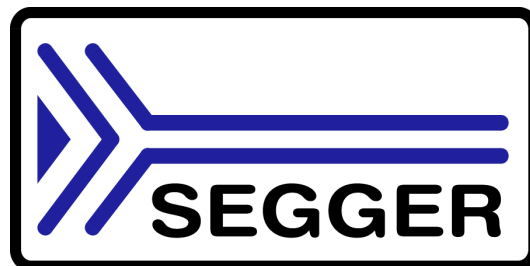
J-Link / J-Trace *User Guide*



Software Version V5.12d
Manual Rev. 1

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Revisions

This manual describes the J-Link and J-Trace device.

For further information on topics or routines not yet specified, please contact us.

| Revision | Date | By | Explanation |
|---------------|--------|----|---|
| V5.12d Rev. 1 | 160427 | AG | Chapter "Working with J-Link and J-Trace" * Section "J-Link script files" updated. |
| V5.12d Rev. 0 | 160425 | AG | Chapter "Working with J-Link and J-Trace" * Section "J-Link script files" updated. |
| V5.12c Rev. 1 | 160418 | NG | Chapter "Related Software" * Section "J-Link Commander" Typo fixed. |
| V5.12c Rev. 0 | 160413 | NG | Chapter "Related Software" * Section "J-Link Commander" Commands and commandline options added. Chapter "Working with J-Link and J-Trace" * Section "Command strings" Command "SetRTTtelnetPort" added. Chapter "Flash Download" * Section "Debugging applications that change flash contents at runtime" added. |

| Revision | Date | By | Explanation |
|---------------|--------|----|--|
| V5.10u Rev. 0 | 160317 | AG | Chapter "Monitor Mode Debugging" * Section "Target application performs reset" added. |
| V5.10t Rev. 0 | 160314 | AG | Chapter "Monitor Mode Debugging" * Section "Enable Monitor Debugging" updated. * Section "Forwarding of Monitor Interrupts" added. |
| V5.10 Rev. 3 | 160309 | EL | Chapter "J-Flash SPI" updated. |
| V5.10 Rev. 2 | 160215 | AG | Chapter "RTT" updated. |
| V5.10 Rev. 1 | 151204 | AG | Chapter "RDI" updated. Chapter "Semihosting" added. |
| V5.10 Rev. 0 | 151127 | NG | Chapter "Related Software" * Section "J-Scope" removed. |
| V5.02m Rev. 0 | 151125 | AG | Chapter "Working with J-Link and J-Trace" * Section "The J-Link settings file" added. Chapter "Low Power Debugging" added. |
| V5.02l Rev. 0 | 151123 | AG | Various Chapters * Some typos corrected. |
| V5.02i Rev. 1 | 151106 | RH | Chapter "J-Flash SPI" * Section "Send custom commands" added. |
| V5.02i Rev. 0 | 151105 | RH | Chapter "Related Software" * Section "J-Link Commander" exec command added. Chapter "Working with J-Link and J-Trace" * Section "Command strings" New commands added. |
| V5.02f Rev. 1 | 151022 | NG | Chapter "Related Software" * Section "J-Scope" updated. |
| V5.02f Rev. 1 | 151022 | EL | Chapter "Target interfaces and adapters" * Section "Reference voltage (VTref)" added. |
| V5.02f Rev. 0 | 151007 | RH | Chapter "Working with J-Link and J-Trace" * Section "J-Link script files" updated. |
| V5.02e Rev. 0 | 151001 | AG | Chapter "Working with J-Link and J-Trace" * Section "J-Link script files" updated. |
| V5.02c Rev. 1 | 150925 | NG | Chapter "Licensing" * Section "Original SEGGER products" updated. Chapter "Flash download" * Section "Setup for various debuggers (CFI flash)" updated. |
| V5.02c Rev. 0 | 150916 | RH | Chapter "Flash download" * Section "Setup for various debuggers (SPIFI flash)" added. |
| V5.02c Rev. 0 | 150914 | RH | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. * Section "Supported OS" Added Windows 10 |
| V5.02a Rev. 0 | 150903 | AG | Chapter "Monitor Mode Debugging" added. |
| V5.02 Rev. 0 | 150820 | AG | Chapter "Working with J-Link and J-Trace" * Section "Command strings" "DisableCortexMXPSRAutoCorrectTBit" added. |
| V5.02 Rev. 0 | 150813 | AG | Chapter "Monitor Mode Debugging" added. |
| V5.00 Rev. 1 | 150728 | NG | Chapter "Related Software" * Section "J-Link Commander" Sub-Section "Command line options" updated. |

| Revision | Date | By | Explanation |
|---------------|--------|----|--|
| V5.00 Rev. 0 | 150609 | AG | Chapter "Flash download" * Section "QSPI flash support" added. Chapter "Flash breakpoints" * Section "Flash Breakpoints in QSPI flash" added |
| V5.00 Rev. 0 | 150520 | EL | Chapter "J-Flash SPI" * Initial version added |
| V4.99b Rev. 0 | 150520 | EL | Chapter "Related Software" * Section "J-Link STM32 Unlock" - Added command line options |
| V4.99a Rev. 0 | 150429 | AG | Chapter "Target interfaces and Adapters" Chapter "20-pin J-Link connector", section "Pinout for SPI" added. |
| V4.98d Rev. 0 | 150427 | EL | Chapter "Related Software" * Section "Configure SWO output after device reset" updated. |
| V4.98b Rev. 0 | 150410 | AG | Chapter "Licensing" * Section "J-Trace for Cortex-M" updated. |
| V4.98 Rev. 0 | 150320 | NG | Chapter "Related Software" * Section "J-Link Commander" Sub-Section "Commands" added. Chapter "Working with J-Link and J-Trace" * Section "J-Link script files" updated |
| V4.96f Rev. 0 | 150204 | JL | Chapter "Related Software" * Section "GDB Server" Exit code description added. |
| V4.96 Rev. 0 | 141219 | JL | Chapter "RTT" added. Chapter "Related Software" * Section "GDB Server" Command line option "-strict" added. Command line option "-timeout" added. |
| V4.90d Rev. 0 | 141112 | NG | Chapter "Related Software" * Section "J-Link Remote Server" updated. * Section "J-Scope" updated. |
| V4.90c Rev. 0 | 140924 | JL | Chapter "Related Software" * Section "JTAGLoad" updated. |
| V4.90b Rev. 1 | 140813 | EL | Chapter "Working with J-Link and J-Trace" * Section "Connecting multiple J-Links / J-Traces to your PC" updated Chapter "J-Link software" * Section "J-Link Configurator" updated. |
| V4.90b Rev. 0 | 140813 | NG | Chapter "Related Software" * Section "J-Scope" added. |
| V4.86 Rev. 2 | 140606 | AG | Chapter "Device specifics" * Section "Silicon Labs - EFM32 series devices" added |
| V4.86 Rev. 1 | 140527 | JL | Chapter "Related Software" * Section "GDB Server" Command line options -halt / -nohalt added. Description for GDB Server CL version added. |
| V4.86 Rev. 0 | 140519 | AG | Chapter "Flash download" Section "Mentor Sourcery CodeBench" added. |
| V4.84 Rev. 0 | 140321 | EL | Chapter "Working with J-Link" * Section "Virtual COM Port (VCOM) improved." Chapter "Target interfaces and adapters" * Section "Pinout for SWD + Virtual COM Port (VCOM) added." |

| Revision | Date | By | Explanation |
|---------------|--------|-----------|---|
| V4.82 Rev. 1 | 140228 | EL | Chapter "Related Software" * Section "Command line options" Extended command line option -speed. Chapter "J-Link software and documentation package" * Section "J-Link STR91x Commander" Added command line option parameter to specify a customized scan-chain. Chapter "Working with J-Link" * Section "Virtual COM Port (VCOM) added." Chapter "Setup" * Section "Getting started with J-Link and DS-5" |
| V4.82 Rev. 0 | 140218 | JL | Chapter "Related Software" * Section "GDB Server" Command line option -notimout added. |
| V4.80f Rev. 0 | 140204 | JL | Chapter "Related Software" * Section "GDB Server" Command line options and remote commands added. |
| V4.80 Rev. 1 | 131219 | JL/ NG | Chapter "Related Software" * Section "GDB Server" Remote commands and command line options description improved. Several corrections. |
| V4.80 Rev. 0 | 131105 | JL | Chapter "Related Software" * Section "GDB Server" SEGGER-specific GDB protocol extensions added. |
| V4.76 Rev. 3 | 130823 | JL | Chapter "Flash Download" * Replaced references to GDB Server manual. Chapter "Working withc J-Link" * Replaced references to GDB Server manual. |
| V4.76 Rev. 2 | 130821 | JL | Chapter "Related Software" * Section "GDB Server" Remote commands added. |
| V4.76 Rev. 1 | 130819 | JL | Chapter "Related Software" * Section "SWO Viewer" Sample code updated. |
| V4.76 Rev. 0 | 130809 | JL | Chapter "Related Software" * Sections reordered and updated. Chapter "Setup" * Section "Using JLinkARM.dll moved here. |
| V4.71b Rev. 0 | 130507 | JL | Chapter "Related Software" * Section "SWO Viewer" Added new command line options. |
| V4.66 Rev. 0 | 130221 | JL | Chapter "Introduction" * Section "Supported OS" Added Linux and Mac OSX |
| V4.62b Rev. 0 | 130219 | EL | Chapter "Introduction" * Section "J-Link / J-Trace models" Clock rise and fall times updated. |
| V4.62 Rev. 0 | 130129 | JL | Chapter "Introduction" * Section "J-Link / J-Trace models" Sub-section "J-link ULTRA" updated. |
| V4.62 Rev. 0 | 130124 | EL | Chapter "Target interfaces and adapters" * Section "9-pin JTAG/SWD connector" Pinout description corrected. |

| Revision | Date | By | Explanation |
|---------------|--------|----|--|
| V4.58 Rev. 1 | 121206 | AG | Chapter "Intoduction" * Section "J-Link / J-Trace models" updated. |
| V4.58 Rev. 0 | 121126 | JL | Chapter "Working with J-Link" * Section "J-Link script files" Sub-section "Executing J-Link script files" updated. |
| V4.56b Rev. 0 | 121112 | JL | Chapter "Related Software" * Section "J-Link SWO Viewer" Added sub-section "Configure SWO output after device reset" |
| V4.56a Rev. 0 | 121106 | JL | Chapter "Related Software" * Section "J-Link Commander" Renamed "Commander script files" to "Commander files" and "script mode" to "batch mode". |
| V4.56 Rev. 0 | 121022 | AG | Renamed "J-Link TCP/IP Server" to "J-Link Remote Server". |
| V4.54 Rev. 1 | 121009 | JL | Chapter "Related Software" * Section "TCP/IP Server", subsection "Tunneling Mode" added. |
| V4.54 Rev. 0 | 120913 | EL | Chapter "Flash Breakpoints" * Section "Licensing" updated. Chapter "Device specifics" * Section "Freescale", subsection "Data flash support" added. |
| V4.53c Rev. 0 | 120904 | EL | Chapter "Licensing" * Section "Device-based license" updated. |
| V4.51h Rev. 0 | 120717 | EL | Chapter "Flash download" * Section "J-Link commander" updated. Chapter "Support and FAQs" * Section "Frequently asked questions" updated. Chapter "J-Link and J-Trace related software" * Section "J-Link Commander" updated. |
| V4.51e Rev. 1 | 120704 | EL | Chapter "Working with J-Link" * Section "Reset strategies" updated and corrected. Added reset type 8. |
| V4.51e Rev. 0 | 120704 | AG | Chapter "Device specifics" * Section "ST" updated and corrected. |
| V4.51b Rev. 0 | 120611 | EL | Chapter "J-Link and J-Trace related software" * Section "SWO Viewer" added. |
| V4.51a Rev. 0 | 120606 | EL | Chapter "Device specifics" * Section "ST", subsection "ETM init" for some STM32 devices added.. * Section "Texas Instruments" updated. Chapter "Target interfaces and adapters" * Section "Pinout for SWD" updated. |
| V4.47a Rev. 0 | 120419 | AG | Chapter "Device specifics" * Section "Texas Instruments" updated. |
| V4.46 Rev. 0 | 120416 | EL | Chapter "Support" updated. |
| V4.42 Rev. 0 | 120214 | EL | Chapter "Working with J-Link" * Section "J-Link script files" updated. |

| Revision | Date | By | Explanation |
|--------------|--------|----|---|
| V4.36 Rev. 1 | 110927 | EL | Chapter "Flash download" added. Chapter "Flash breakpoints" added. Chapter "Target interfaces and adapters" * Section "20-pin JTAG/SWD connector" updated. Chapter "RDI" added. Chapter "Setup" updated. Chapter "Device specifics" updated. |
| V4.36 Rev. 0 | 110909 | AG | Chapter "Working with J-Link" * Section "J-Link script files" updated. |
| V4.26 Rev. 1 | 110513 | KN | Chapter "Introduction" * Section "J-Link / J-Trace models" corrected. |
| V4.26 Rev. 0 | 110427 | KN | Several corrections. |
| V4.24 Rev. 1 | 110228 | AG | Chapter "Introduction" * Section "J-Link / J-Trace models" corrected. Chapter "Device specifics" * Section "ST Microelectronics" updated. |
| V4.24 Rev. 0 | 110216 | AG | Chapter "Device specifics" * Section "Samsung" added. Chapter "Working with J-Link" * Section "Reset strategies" updated. Chapter "Target interfaces and adapters" * Section "9-pin JTAG/SWD connector" added. |
| V4.23d | 110202 | AG | Chapter "J-Link and J-Trace related software" * Section "J-Link software and documentation package in detail" updated. Chapter "Introduction" * Section "Built-in intelligence for supported CPU-cores" added. |
| V4.21g | 101130 | AG | Chapter "Working with J-Link" * Section "Reset strategies" updated. Chapter "Device specifics" * Section "Freescale" updated. Chapter "Flash download and flash breakpoints" * Section "Supported devices" updated * Section "Setup for different debuggers (CFI flash)" updated. |
| V4.21 | 101025 | AG | Chapter "Device specifics" * Section "Freescale" updated. |
| V4.20j | 101019 | AG | Chapter "Working with J-Link" * Section "Reset strategies" updated. |
| V4.20b | 100923 | AG | Chapter "Working with J-Link" * Section "Reset strategies" updated. |
| 90 | 100818 | AG | Chapter "Working with J-Link" * Section "J-Link script files" updated. * Section "Command strings" updated. Chapter "Target interfaces and adapters" * Section "19-pin JTAG/SWD and Trace connector" corrected. Chapter "Setup" * Section "J-Link configurator added." |
| 89 | 100630 | AG | Several corrections. |
| 88 | 100622 | AG | Chapter "J-Link and J-Trace related software" * Section "SWO Analyzer" added. |
| 87 | 100617 | AG | Several corrections. |

| Revision | Date | By | Explanation |
|----------|--------|----|---|
| 86 | 100504 | AG | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. Chapter "Target interfaces and adapters" * Section "Adapters" updated. |
| 85 | 100428 | AG | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. |
| 84 | 100324 | KN | Chapter "Working with J-Link and J-Trace" * Several corrections Chapter Flash download & flash breakpoints * Section "Supported devices" updated |
| 83 | 100223 | KN | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. |
| 82 | 100215 | AG | Chapter "Working with J-Link" * Section "J-Link script files" added. |
| 81 | 100202 | KN | Chapter "Device Specifics" * Section "Luminary Micro" updated. Chapter "Flash download and flash breakpoints" * Section "Supported devices" updated. |
| 80 | 100104 | KN | Chapter "Flash download and flash breakpoints" * Section "Supported devices" updated |
| 79 | 091201 | AG | Chapter "Working with J-Link and J-Trace" * Section "Reset strategies" updated. Chapter "Licensing" * Section "J-Link OEM versions" updated. |
| 78 | 091023 | AG | Chapter "Licensing" * Section "J-Link OEM versions" updated. |
| 77 | 090910 | AG | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. |
| 76 | 090828 | KN | Chapter "Introduction" * Section "Specifications" updated * Section "Hardware versions" updated * Section "Common features of the J-Link product family" updated Chapter "Target interfaces and adapters" * Section "5 Volt adapter" updated |
| 75 | 090729 | AG | Chapter "Introduction" * Section "J-Link / J-Trace models" updated. Chapter "Working with J-Link and J-Trace" * Section "SWD interface" updated. |
| 74 | 090722 | KN | Chapter "Introduction" * Section "Supported IDEs" added * Section "Supported CPU cores" updated * Section "Model comparison chart" renamed to "Model comparison" * Section "J-Link bundle comparison chart" removed |
| 73 | 090701 | KN | Chapter "Introduction" * Section "J-Link and J-Trace models" added * Sections "Model comparison chart" & "J-Link bundle comparison chart" added Chapter "J-Link and J-Trace models" removed Chapter "Hardware" renamed to "Target interfaces & adapters" * Section "JTAG Isolator" added Chapter "Target interfaces and adapters" * Section "Target board design" updated Several corrections |

| Revision | Date | By | Explanation |
|----------|--------|----|--|
| 72 | 090618 | AG | Chapter "Working with J-Link" * Section "J-Link control panel" updated. Chapter "Flash download and flash breakpoints" * Section "Supported devices" updated. Chapter "Device specifics" * Section "NXP" updated. |
| 71 | 090616 | AG | Chapter "Device specifics" * Section "NXP" updated. |
| 70 | 090605 | AG | Chapter "Introduction" * Section "Common features of the J-Link product family" updated. |
| 69 | 090515 | AG | Chapter "Working with J-Link" * Section "Reset strategies" updated. * Section "Indicators" updated. Chapter "Flash download and flash breakpoints" * Section "Supported devices" updated. |
| 68 | 090428 | AG | Chapter "J-Link and J-Trace related software" * Section "J-Link STM32 Commander" added. Chapter "Working with J-Link" * Section "Reset strategies" updated. |
| 67 | 090402 | AG | Chapter "Working with J-Link" * Section "Reset strategies" updated. |
| 66 | 090327 | AG | Chapter "Background information" * Section "Embedded Trace Macrocell (ETM)" updated. Chapter "J-Link and J-Trace related software" * Section "Dedicated flash programming utilities for J-Link" updated. |
| 65 | 090320 | AG | Several changes in the manual structure. |
| 64 | 090313 | AG | Chapter "Working with J-Link" * Section "Indicators" added. |
| 63 | 090212 | AG | Chapter "Hardware" * Several corrections. * Section "Hardware Versions" Version 8.0 added. |
| 62 | 090211 | AG | Chapter "Working with J-Link and J-Trace" * Section "Reset strategies" updated. Chapter J-Link and J-Trace related software * Section "J-Link STR91x Commander (Command line tool)" updated. Chapter "Device specifics" * Section "ST Microelectronics" updated. Chapter "Hardware" updated. |
| 61 | 090120 | TQ | Chapter "Working with J-Link" * Section "Cortex-M3 specific reset strategies" |
| 60 | 090114 | AG | Chapter "Working with J-Link" * Section "Cortex-M3 specific reset strategies" |
| 59 | 090108 | KN | Chapter Hardware * Section "Target board design for JTAG" updated. * Section "Target board design for SWD" added. |
| 58 | 090105 | AG | Chapter "Working with J-Link Pro" * Section "Connecting J-Link Pro the first time" updated. |

| Revision | Date | By | Explanation |
|----------|--------|----|---|
| 57 | 081222 | AG | Chapter "Working with J-Link Pro" * Section "Introduction" updated. * Section "Configuring J-Link Pro via web interface" updated. Chapter "Introduction" * Section "J-Link Pro overview" updated. |
| 56 | 081219 | AG | Chapter "Working with J-Link Pro" * Section "FAQs" added. Chapter "Support and FAQs" * Section "Frequently Asked Questions" updated. |
| 55 | 081218 | AG | Chapter "Hardware" updated. |
| 54 | 081217 | AG | Chapter "Working with J-Link and J-Trace" * Section "Command strings" updated. |
| 53 | 081216 | AG | Chapter "Working with J-Link Pro" updated. |
| 52 | 081212 | AG | Chapter "Working with J-Link Pro" added. Chapter "Licensing" * Section "Original SEGGER products" updated. |
| 51 | 081202 | KN | Several corrections. |
| 50 | 081030 | AG | Chapter "Flash download and flash breakpoints" * Section "Supported devices" corrected. |
| 49 | 081029 | AG | Several corrections. |
| 48 | 080916 | AG | Chapter "Working with J-Link and J-Trace" * Section "Connecting multiple J-Links / J-Traces to your PC" updated. |
| 47 | 080910 | AG | Chapter "Licensing" updated. |
| 46 | 080904 | AG | Chapter "Licensing" added. Chapter "Hardware" Section "J-Link OEM versions" moved to chapter "Licensing" |
| 45 | 080902 | AG | Chapter "Hardware" Section "JTAG+Trace connector" JTAG+Trace connector pinout corrected. Section "J-Link OEM versions" updated. |
| 44 | 080827 | AG | Chapter "J-Link control panel" moved to chapter "Working with J-Link". Several corrections. |
| 43 | 080826 | AG | Chapter "Flash download and flash breakpoints" Section "Supported devices" updated. |
| 42 | 080820 | AG | Chapter "Flash download and flash breakpoints" Section "Supported devices" updated. |
| 41 | 080811 | AG | Chapter "Flash download and flash breakpoints" updated. Chapter "Flash download and flash breakpoints", section "Supported devices" updated. |
| 40 | 080630 | AG | Chapter "Flash download and flash breakpoints" updated. Chapter "J-Link status window" renamed to "J-Link control panel" Various corrections. |
| 39 | 080627 | AG | Chapter "Flash download and flash breakpoints" Section "Licensing" updated. Section "Using flash download and flash breakpoints with different debuggers" updated. Chapter "J-Link status window" added. |

| Revision | Date | By | Explanation |
|----------|---------|----|--|
| 38 | 080618 | AG | Chapter "Support and FAQs" Section "Frequently Asked Questions" updated Chapter "Reset strategies" Section "Cortex-M3 specific reset strategies" updated. |
| 37 | 080617 | AG | Chapter "Reset strategies" Section "Cortex-M3 specific reset strategies" updated. |
| 36 | 080530 | AG | Chapter "Hardware" Section "Differences between different versions" updated. Chapter "Working with J-Link and J-Trace" Section "Cortex-M3 specific reset strategies" added. |
| 35 | 080215 | AG | Chapter "J-Link and J-Trace related software" Section "J-Link software and documentation package in detail" updated. |
| 34 | 080212 | AG | Chapter "J-Link and J-Trace related software" Section "J-Link TCP/IP Server (Remote J-Link / J-Trace use)" updated. Chapter "Working with J-Link and J-Trace" Section "Command strings" updated. Chapter "Flash download and flash breakpoints" Section "Introduction" updated. Section "Licensing" updated. Section "Using flash download and flash breakpoints with different debuggers" updated. |
| 33 | 080207 | AG | Chapter "Flash download and flash breakpoints" added Chapter "Device specifics": Section "ATMEL - AT91SAM7 - Recommended init sequence" added. |
| 32 | 0080129 | SK | Chapter "Device specifics": Section "NXP - LPC - Fast GPIO bug" list of device enhanced. |
| 31 | 0080103 | SK | Chapter "Device specifics": Section "NXP - LPC - Fast GPIO bug" updated. |
| 30 | 071211 | AG | Chapter "Device specifics": Section "Analog Devices" updated. Section "ATMEL" updated. Section "Freescale" added. Section "Luminary Micro" added. Section "NXP" updated. Section "OKI" added. Section "ST Microelectronics" updated. Section "Texas Instruments" updated. Chapter "Related software": Section "J-Link STR91x Commander" updated |
| 29 | 070912 | SK | Chapter "Hardware", section "Target board design" updated. |
| 28 | 070912 | SK | Chapter "Related software": Section "J-LinkSTR91x Commander" added. Chapter "Device specifics": Section "ST Microelectronics" added. Section "Texas Instruments" added. Subsection "AT91SAM9" added. |

| Revision | Date | By | Explanation |
|----------|--------|----|--|
| 28 | 070912 | AG | Chapter "Working with J-Link/J-Trace": Section "Command strings" updated. |
| 27 | 070827 | TQ | Chapter "Working with J-Link/J-Trace": Section "Command strings" updated. |
| 26 | 070710 | SK | Chapter "Introduction": Section "Features of J-Link" updated. Chapter "Background Information": Section "Embedded Trace Macrocell" added. Section "Embedded Trace Buffer" added. |
| 25 | 070516 | SK | Chapter "Working with J-Link/J-Trace": Section "Reset strategies in detail" - "Software, for Analog Devices ADuC7xxx MCUs" updated - "Software, for ATMEL AT91SAM7 MCUs" added. Chapter "Device specifics" Section "Analog Devices" added. Section "ATMEL" added. |
| 24 | 070323 | SK | Chapter "Setup": "Uninstalling the J-Link driver" updated. "Supported ARM cores" updated. |
| 23 | 070320 | SK | Chapter "Hardware": "Using the JTAG connector with SWD" updated. |
| 22 | 070316 | SK | Chapter "Hardware": "Using the JTAG connector with SWD" added. |
| 21 | 070312 | SK | Chapter "Hardware": "Differences between different versions" supplemented. |
| 20 | 070307 | SK | Chapter "J-Link / J-Trace related software": "J-Link GDB Server" licensing updated. |
| 19 | 070226 | SK | Chapter "J-Link / J-Trace related software" updated and reorganized. Chapter "Hardware" "List of OEM products" updated |
| 18 | 070221 | SK | Chapter "Device specifics" added Subchapter "Command strings" added |
| 17 | 070131 | SK | Chapter "Hardware": "Version 5.3": Current limits added "Version 5.4" added Chapter "Setup": "Installing the J-Link USB driver" removed. "Installing the J-Link software and documentation pack" added. Subchapter "List of OEM products" updated. "OS support" updated |
| 16 | 061222 | SK | Chapter "Preface": "Company description" added. J-Link picture changed. |
| 15 | 060914 | OO | Subchapter 1.5.1: Added target supply voltage and target supply current to specifications. Subchapter 5.2.1: Pictures of ways to connect J-Trace. |
| 14 | 060818 | TQ | Subchapter 4.7 "Using DCC for memory reads" added. |
| 13 | 060711 | OO | Subchapter 5.2.2: Corrected JTAG+Trace connector pinout table. |
| 12 | 060628 | OO | Subchapter 4.1: Added ARM966E-S to List of supported ARM cores. |

| Revision | Date | By | Explanation |
|----------|--------|----|--|
| 11 | 060607 | SK | Subchapter 5.5.2.2 changed. Subchapter 5.5.2.3 added. |
| 10 | 060526 | SK | ARM9 download speed updated. Subchapter 8.2.1: Screenshot "Start sequence" updated. Subchapter 8.2.2 "ID sequence" removed. Chapter "Support" and "FAQ" merged. Various improvements |
| 9 | 060324 | OO | Chapter "Literature and references" added. Chapter "Hardware": Added common information trace signals. Added timing diagram for trace. Chapter "Designing the target board for trace" added. |
| 8 | 060117 | OO | Chapter "Related Software": Added JLinkARM.dll. Screenshots updated. |
| 7 | 051208 | OO | Chapter Working with J-Link: Sketch added. |
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| 5 | 051103 | TQ | Chapter Setup: "JTAG Speed" added. |
| 4 | 051025 | OO | Chapter Background information: "Flash programming" added. Chapter Setup: "Scan chain configuration" added. Some smaller changes. |
| 3 | 051021 | TQ | Performance values updated. |
| 2 | 051011 | TQ | Chapter "Working with J-Link" added. |
| 1 | 050818 | TW | Initial version. |

About this document

Assumptions

This document assumes that you already have a solid knowledge of the following:

- The software tools used for building your application (assembler, linker, C compiler)
- The C programming language
- The target processor
- DOS command line

If you feel that your knowledge of C is not sufficient, we recommend *The C Programming Language* by Kernighan and Ritchie (ISBN 0-13-1103628), which describes the standard in C-programming and, in newer editions, also covers the ANSI C standard.

How to use this manual

This manual explains all the functions and macros that the product offers. It assumes you have a working knowledge of the C language. Knowledge of assembly programming is not required.

Typographic conventions for syntax

This manual uses the following typographic conventions:

| Style | Used for |
|-------------------|--|
| Body | Body text. |
| Keyword | Text that you enter at the command-prompt or that appears on the display (that is system functions, file- or pathnames). |
| Parameter | Parameters in API functions. |
| Sample | Sample code in program examples. |
| Sample comment | Comments in programm examples. |
| Reference | Reference to chapters, sections, tables and figures or other documents. |
| GUIElement | Buttons, dialog boxes, menu names, menu commands. |
| Emphasis | Very important sections. |

Table 1.1: Typographic conventions



SEGGER Microcontroller GmbH & Co. KG develops and distributes software development tools and ANSI C software components (middleware) for embedded systems in several industries such as telecom, medical technology, consumer electronics, automotive industry and industrial automation.

SEGGER's intention is to cut software development time for embedded applications by offering compact flexible and easy to use middleware, allowing developers to concentrate on their application.

Our most popular products are emWin, a universal graphic software package for embedded applications, and embOS, a small yet efficient real-time kernel. emWin, written entirely in ANSI C, can easily be used on any CPU and most any display. It is complemented by the available PC tools: Bitmap Converter, Font Converter, Simulator and Viewer. embOS supports most 8/16/32-bit CPUs. Its small memory footprint makes it suitable for single-chip applications.

Apart from its main focus on software tools, SEGGER develops and produces programming tools for flash micro controllers, as well as J-Link, a JTAG emulator to assist in development, debugging and production, which has rapidly become the industry standard for debug access to ARM cores.

Corporate Office:

<http://www.segger.com>

United States Office:

<http://www.segger-us.com>

EMBEDDED SOFTWARE (Middleware)



emWin

Graphics software and GUI

emWin is designed to provide an efficient, processor- and display controller-independent graphical user interface (GUI) for any application that operates with a graphical display.



embOS

Real Time Operating System

embOS is an RTOS designed to offer the benefits of a complete multitasking system for hard real time applications with minimal resources.



embOS/IP

TCP/IP stack

embOS/IP a high-performance TCP/IP stack that has been optimized for speed, versatility and a small memory footprint.



emFile

File system

emFile is an embedded file system with FAT12, FAT16 and FAT32 support. Various Device drivers, e.g. for NAND and NOR flashes, SD/MMC and Compact-Flash cards, are available.



USB-Stack

USB device/host stack

A USB stack designed to work on any embedded system with a USB controller. Bulk communication and most standard device classes are supported.

SEGGER TOOLS

Flasher

Flash programmer

Flash Programming tool primarily for micro controllers.

J-Link

JTAG emulator for ARM cores

USB driven JTAG interface for ARM cores.

J-Trace

JTAG emulator with trace

USB driven JTAG interface for ARM cores with Trace memory. supporting the ARM ETM (Embedded Trace Macrocell).

J-Link / J-Trace Related Software

Add-on software to be used with SEGGER's industry standard JTAG emulator, this includes flash programming software and flash breakpoints.

Table 1.1:



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Chapter 1

Introduction

This chapter gives a short overview about J-Link and J-Trace.