RTI Connext DDS

Core Libraries

Custom Support for VxWorks 6.9.3 Platforms

Version 5.3.0

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Custom Support for VxWorks 6.9.3 Platforms

1 Supported Platforms

This document supplements the RTI Connext DDS Core Libraries Release Notes and RTI Connext DDS Core Libraries Platform Notes. It provides information specifically for the platforms in Table 1 Custom Supported VxWorks 6.9.3 Platforms.

See the *Platform Notes* for other information regarding VxWorks platforms, such as thread configuration.

Table 1 Custom Supported VxWorks 6.9.3 Platforms

Operating System	CPU	Compiler	RTI Architecture Abbreviation
VxWorks 6.9.3	ARMv7	gcc 4.3.3	For Kernel Modules: armv7aVx6.9gcc4.3.3 For Real-Time Processes: armv7aVx6.9gcc4.3.3_rtp
	PPC (e500v2)		For Kernel Modules: ppce500v2Vx6.9gcc4.3.3 For Real-Time Processes: ppce500v2Vx6.9gcc4.3.3_rtp
	MIPS		For Kernel Modules: mips32r2sfbeVx6.9gcc4.3.3 For Real-Time Processes: mips32r2sfbeVx6.9gcc4.3.3_rtp

2 Features

These features are supported, see the *Platform Notes* for more information:

- Modern C++ API
- Request-Reply communication pattern

- Monotonic clock
- Distributed Logger

These features are not supported:

- Multicast
- Control of CPU core affinity for RTI threads
- Durable Writer History and Durable Reader State

3 Transports

These transports are supported:

- Shared memory: Supported and enabled by default
- UDPv4: Supported and enabled by default.

These transports are not supported:

- UDPv6
- TCP/IPv4
- RTI Secure WAN Transport

4 Compiling and Running

Table 2 Building Instructions lists the libraries you will need to link into your application and the required compiler flags.

Note: Dynamic libraries are not available for mips32r2sfbeVx6.9gcc4.3.3_rtp.

Table 2 Building Instructions

API	Library Format	Required RTI Libraries[a] [b]	Required Kernel Components	Required Compiler Flags
C++ (Traditional and Modern APIs)	Static Release	libnddscppz.a or libnddscpp2z.a libnddscz.a libnddscorez.a librticonnextmsgcppz.a	INCLUDE_ TIMESTAMP INCLUDE_POSIX_ CLOCKS	-DRTI_ VXWORKS
	Static Debug	libnddscppzd.a or libnddscpp2zd.a libnddsczd.a libnddscorezd.a librticonnextmsgcppzd.a		
	Dynamic Release	libnddscpp2.so (for RTP mode) libnddscpp2.lo (for kernel mode) librticonnextmsgcpp.so (for RTP mode) librticonnextmsgcpp.lo (for kernel mode) libnddsc.so libnddscore.so libnddscpp.so		
	Dynamic Debug	libnddscpp2d.so (for RTP mode) libnddscpp2d.lo (for kernel mode) librticonnextmsgcppd.so (for RTP mode) librticonnextmsgcppd.lo (for kernel mode) libnddscd.so libnddscored.so libnddscppd.so		

[a]The Connext DDS C/C++ libraries are in<NDDSHOME>/lib/<*architecture*> (where <NDDSHOME> is where Connext DDS is installed, such as /home/your user name/rti_connext_dds-5.x.y)

[b]The *rticonnextmsg* library only applies if you have the *Connext DDS* Professional, Evaluation, or Basic package type. It is not provided with the *Connext DDS* Core package type.

Table 2 Building Instructions

API	Library Format	Required RTI Libraries[a] [b]	Required Kernel Components	Required Compiler Flags
C	Static Release	libnddscz.a libnddscorez.a librticonnextmsgcz.a	INCLUDE_ TIMESTAMP INCLUDE_POSIX_ CLOCKS	-DRTI_VXWORKS
	Static Debug	libnddsczd.a libnddscorezd.a librticonnextmsgczd.a		
	Dynamic Release	libnddsc.so libnddscore.so librticonnextmsgc.so		
	Dynamic Debug	libnddscd.so libnddscored.so librticonnextmsgcd.so		

Compiling a Connext DDS application for VxWorks depends on the development platform. For more information, such as specific compiler flags, see the *VxWorks Programmer's Guide*. Table 3 Library-Creation Details provides details on how the VxWorks libraries were built. We recommend that you use similar settings.

[a]The Connext DDS C/C++ libraries are in<NDDSHOME>/lib/<*architecture*> (where <NDDSHOME> is where Connext DDS is installed, such as /home/your user name/rti_connext_dds-5.x.y)

[b]The *rticonnextmsg* library only applies if you have the *Connext DDS* Professional, Evaluation, or Basic package type. It is not provided with the *Connext DDS* Core package type.

Table 3 Library-Creation Details

RTI Architecture	Library Format	Compiler Flags Used by RTI
armv7aVx6.9gcc4.3.3	Static or Dynamic Release	ccarm -t7 -mfpu=vfp -mfloat-abi=softfp -ansi -fno-zero-initialized-in-bss -fno-builtin -fvolatile -mlong-calls -mapcs-frame -DCPU=ARMARCH7 -DTOOL_FAMILY=gnu -DTOOL=gnu -DARM_USE_VFP -DRTI_VFP_TASK -D_WRS_KERNEL -D__PROTOTYPE_5_0 -O -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccarm -t7 -mfpu=vfp -mfloat-abi=softfp -ansi -fno-zero-initialized-in-bss -fno-builtin -fvolatile -mlong-calls -mapcs-frame -DCPU=ARMARCH7 -DTOOL_FAMILY=gnu -DTOOL=gnu -DARM_USE_VFP -DRTI_VFP_TASK -D_WRS_KERNEL -D__PROTOTYPE_5_0 -O -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD
armv7aVx6.9gcc4.3.3_rtp	Static or Dynamic Release	ccarm -t7 -mfpu=vfp -mfloat-abi=softfp -ansi -fno-zero-initialized-in-bss -fno-builtin -fvolatile -mlong-calls -mapcs-frame -DCPU=ARMARCH7 -DTOOL_FAMILY=gnu -DTOOL=gnu -mrtp -DARM_USE_VFP -DRTI_VFP_TASK -D_WRS_KERNEL -D__PROTOTYPE_5_0 -O -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccarm -t7 -mfpu=vfp -mfloat-abi=softfp -ansi -fno-zero-initialized-in-bss -fno-builtin -fvolatile -mlong-calls -mapcs-frame -DCPU=ARMARCH7 -DTOOL_FAMILY=gnu -DTOOL=gnu -mrtp -DARM_USE_VFP -DRTI_VFP_TASK -D_WRS_KERNEL -D__PROTOTYPE_5_0 -O -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD
mips32r2sfbeVx6.9gcc4.3.3	Static or Dynamic Release	ccmips -G 0 -mno-branch-likely -mips32r2 -mgp32 -mfp32 -EB -msoft-float -DCPU=MIPSI32R2 -DTOOL_FAMILY=gnu -DTOOL=sfgnu -mlong-calls -D_WRS_KERNEL -D__PROTOTYPE_5_0 -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccmips -G 0 -mno-branch-likely -mips32r2 -mgp32 -mfp32 -EB -msoft-float -DCPU=MIPSI32R2 -DTOOL_FAMILY=gnu -DTOOL=sfgnu -mlong-calls -D_WRS_KERNEL -D__PROTOTYPE_5_0 -g -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD

Table 3 Library-Creation Details

RTI Architecture	Library Format	Compiler Flags Used by RTI
mips32r2sfbeVx6.9gcc4.3.3_rtp	Static or Dynamic Release	ccmips -G 0 -mno-branch-likely -mips32r2 -mgp32 -mfp32 -EB -msoft-float -DRTI_GCC4 -DTOOL=sfgnu -mxgot -mlong-calls -DCPU=MIPSI32R2 -DTOOL_FAMILY=gnu -mrtp -mips32r2 -D__PROTOTYPE_5_0 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccmips -G 0 -mno-branch-likely -mips32r2 -mgp32 -mfp32 -EB -msoft-float -DRTI_GCC4 -DTOOL=sfgnu -mxgot -mlong-calls -DCPU=MIPSI32R2 -DTOOL_FAMILY=gnu -mrtp -mips32r2 -D__PROTOTYPE_5_0 -g -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD
ppce500v2Vx6.9gcc4.3.3	Static or Dynamic Release	ccppc -m32 -mstrict-align -ansi -fno-builtin -mlongcall -DCPU=PPC32 -DTOOL_FAMILY=gnu -DTOOL=e500v2gnu -te500v2 -mcpu=8548 -mfloat-gprs=double -mspe=yes -mabi=spe -D_WRS_KERNEL -D__PROTOTYPE_5_0 -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -O2 -fno-strict-aliasing -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccppc -m32 -mstrict-align -ansi -fno-builtin -mlongcall -DCPU=PPC32 -DTOOL_FAMILY=gnu -DTOOL=e500v2gnu -te500v2 -mcpu=8548 -mfloat-gprs=double -mspe=yes -mabi=spe -D_WRS_KERNEL -D__PROTOTYPE_5_0 -g -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD
ppce500v2Vx6.9gcc4.3.3_rtp	Static or Dynamic Release	ccppc -mstrict-align -m32 -mregnames -ansi -mlongcall -DCPU=PPC32 -DTOOL_FAMILY=gnu -DTOOL=gnu -te500v2 -mcpu=8548 -mfloat-gprs=double -mspe=yes -mabi=spe -mrtp -D__PROTOTYPE_5_0 -O2 -fno-strict-aliasing -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -DPtrIntType=long -DCSREAL_IS_FLOAT -DNDEBUG -Wp,-MD
	Static or Dynamic Debug	ccppc -mstrict-align -m32 -mregnames -ansi -mlongcall -DCPU=PPC32 -DTOOL_FAMILY=gnu -DTOOL=gnu -te500v2 -mcpu=8548 -mfloat-gprs=double -mspe=yes -mabi=spe -mrtp -D__PROTOTYPE_5_0 -g -Wall -Wno-unknown-pragmas -DRTS_VXWORKS -DVXWORKS_MAJOR_VERSION=6 -DVXWORKS_MINOR_VERSION=9 -DPtrIntType=long -DCSREAL_IS_FLOAT -Wp,-MD