RX62N Group

RX62N Multimedia Demonstration on RI600 & FreeRTOS™

Introduction

This application note showcases the use of the Adaptor Layer that allows the RX62N Demo Project to run both on RI-600 and FreeRTOS™.

Target Device

- RX62N Group MCU (product number: R5FF562N8BDBG)

Target Board

- RX62N Renesas Start Kit + (product number: R0K5562N0C000BE)

Middleware

- The follow list are the middleware and reference documents used in this demonstration

Middleware	Version	Product Number	Reference Documentation	Application Note
uITRON	1.00Rel02	R0R5RX00TRW01w	- User Manual (rej10j2052_ri600_4um.pdf) - RX Family Creating Workspace with RI600/4 (r20an0091es0100_rx600.pdf) - RX Family Debugging with RI600/4 (r20an0092es0100_rx600.pdf) - RX Family How to Compute RI600/4 User Stack and System Stack (r20an0093es0100_rx600.pdf)	R20AN0091ES0100 R20AN0092ES0100 R20AN0093ES0100
FreeRTOS™	7.0	-	- www.freertos.org	-
GUI library	1.1.1	R0MRX60GL0011RRC	- GUI Library Introduction Guide (r20an0077ej0100_rx_gui.pdf) - GUI Builder Introduction Guide (r20an0076ej0100_gui.pdf)	R20AN0077EJ0100 R20AN0076EJ0100
Filesystem	-	-	- FAT File System Software (rej06j0086_mcuap.pdf)	REJ06J0086-0100
TCPIP(T4)	1.03Rel00E	R0MRX60PT0020RRC	- Introduction Guide (r20an0051ej0101_rx_t4.pdf) - user's manual (r20uw0031ej0102_t4tiny.pdf) - Ethernet driver interface specification (r20uw0032ej0101_t4tiny.pdf)	R20AN0051EJ0101
JPEG	2.01Rel00E	R0MRX60JP0010RRC	- JPEG Decoder Introduction Guide (r20an0104ej0100_rx_jpegd.pdf) - User's Manual(*) (r20uw0075ej0100_jpegd.pdf)	R20AN0104EJ0100
FFT	1.00Rel00E	R0MRX60LF0010RRC	- User's Manual (r20uw0071ej0101_fft.pdf) - FFT Library Introduction Guide (r20an0085ej0101_rx_fft.pdf)	R20AN0085EJ0101
DES	-	-	- DES Library (r20an0035ej0100_rx_des.pdf)	R20AN0035EJ0100
WAV	-	Free	- Nil	-
ADPCM	-	-	- Sound Data Compression/Expansion Software (rej06j0085_mcuap.pdf)	REJ06J0085-0100
MP3	-	-	- MP3 Library – Available(**).	-
USB Host (MSC)	1.1	Free	- USB Host Mass Storage Class Driver (HMSC) (r01an0513ej_usb_hmsc.pdf)	R01AN0513EJ0110

Note: FreeRTOS™ is a trademark of Real Time Engineers Ltd

(*) Free Evaluation version does not have the file(s).

(**) Please check with the local Renesas Representative.

Contents

Revision Record

General Precautions in the Handling of MPU/MCU Products

1. Introduction

1.1 Applicable Conditions

- MCU: RX62N Group

- Evaluation board: RX62N Renesas Starter Kit + (product number: R0K5562N0C000BE)

- Operating frequencies:

    Input clock: 12 MHz

    System clock (ICLK): 96 MHz

    Peripheral module clock (PCLK): 48 MHz

    External bus clock (BCLK) and SDRAM clock (SDCLK): 48 MHz

- Operating mode: S ingle-chip mode

- Integrated development encironment: Renesas Electronics High-performance Embedded Workshop, Ver. 4.09.01.007

- C compiler: Renesas Electronics RX Family C/C++ Compiler, Ver. 1.00.00 and Ver. 1.02.00

- Compiler, Assembler and Linker options will vary according to Master or Slave, RI-600 or FreeRTOS™ configuration. Please refer to the relevant sections for details.

RENESAS

2.   RX62N Demo Project

2.1   Project Background

The RX62N Demo Project showcases the use of the RX62N MCU for a variety of purposes.

2.2   RX62N: Block Diagram

The RX62N MCU has the following block diagram:
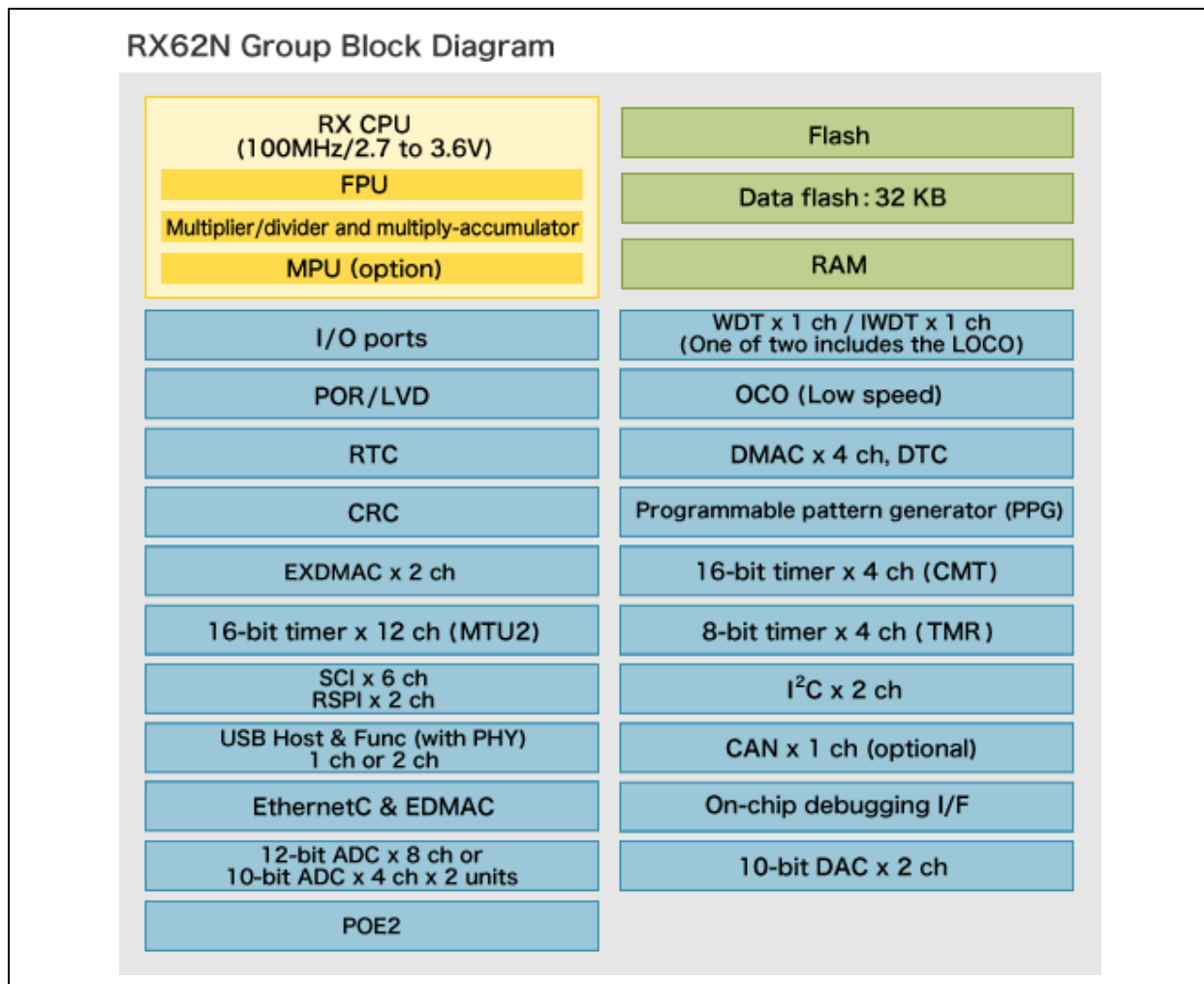
2.3   RX62N Demo Project: Connection Setup

The RX62N Demo Project showcases the use of two RX62N Renesas Starters Kit (RSK) that communicates with one another through IEE 802.3, Ethernet. One RSK, deemed the Master will have an LCD Panel attached to it while the other RSK, deemed the slave, will serve as a host to transfer files over from the slave to the master. This can be seen from the connection block diagram as such:
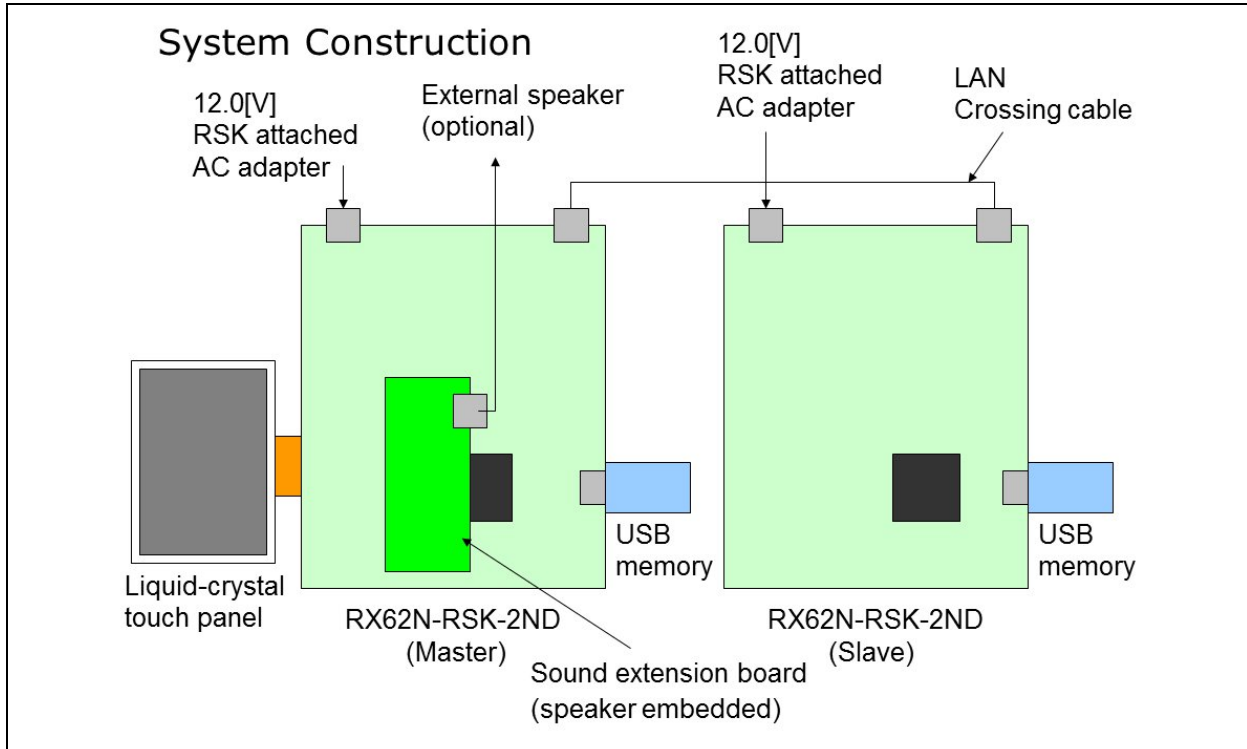
The physical hardware connection looks as such:

2.4   Contents of Demo Set

| No.	Name	No. of pcs.	Remarks
1	Box for RX62N-RSK-2ND (Master)	1	"Master" sticker is attached at the top right of the white box with a blue line: 3, 5, 6 and 7 are stored. * An E1 emulator of RSK standard accessories is also stored.
2	Box for RX62N-RSK-2ND (Slave)	1	"Slave" sticker is attached on the top right of the white box with a blue line: 4, 7, 8, 9 and 10 are stored. * An E1 emulator of RSK standard accessories is also stored.
3	RX62N-RSK-2ND (Master)	1	Including connecters for two extension boards (Liquid-crystal touch panel and Sound extension board).
4	RX62N-RSK-2ND (Slave)	1	No remodeling
5	Sound extension board	1	Connected to JA1 and JA2 at the top of the Master. JA1 and JA2 signs can be found on the back of the Sound extension board.
6	Liquid-crystal touch panel	1	Connected to TFT at the bottom of the Master. Care should be taken as the pin numbers are different between TFT and the connecters for the Liquid-crystal touch panel. * Connect them as the pin1 (sign△) on TFT at the top of the Master is inserted.
7	12.0[V]RSK attached AC adapter	2	Connected to PWR of the Master/ Slave. * Setting change of a jumper on the Master/ Slave may cause heat generation.
8	USB memory	2	Connect to either Master or Slave. * USB should be formatted as FAT16.
9	LAN crossing cable	1	LAN connecters of the Master/ Slave are directly connected.
10	RX62N demo sign	1	A sign saying "RX62N connectivity demo"
11	External speaker		Connected to the OUT pins on Sound extension board (optional)

2.5   Master: Hardware Setup Procedure

Jumper settings:

- J22: Set to MITOC4A-A
- J23: Set to MITOC0C
- Install JA1 and JA2 connecters on the upper side of the board for the Sound Board
- Install TFT connector on the under side of the board for connection to the Touch Panel
- Remove resistor R46 and install it at R47.

The locations of these changes on the RX62N RSK Master Top View can be seen as follows:
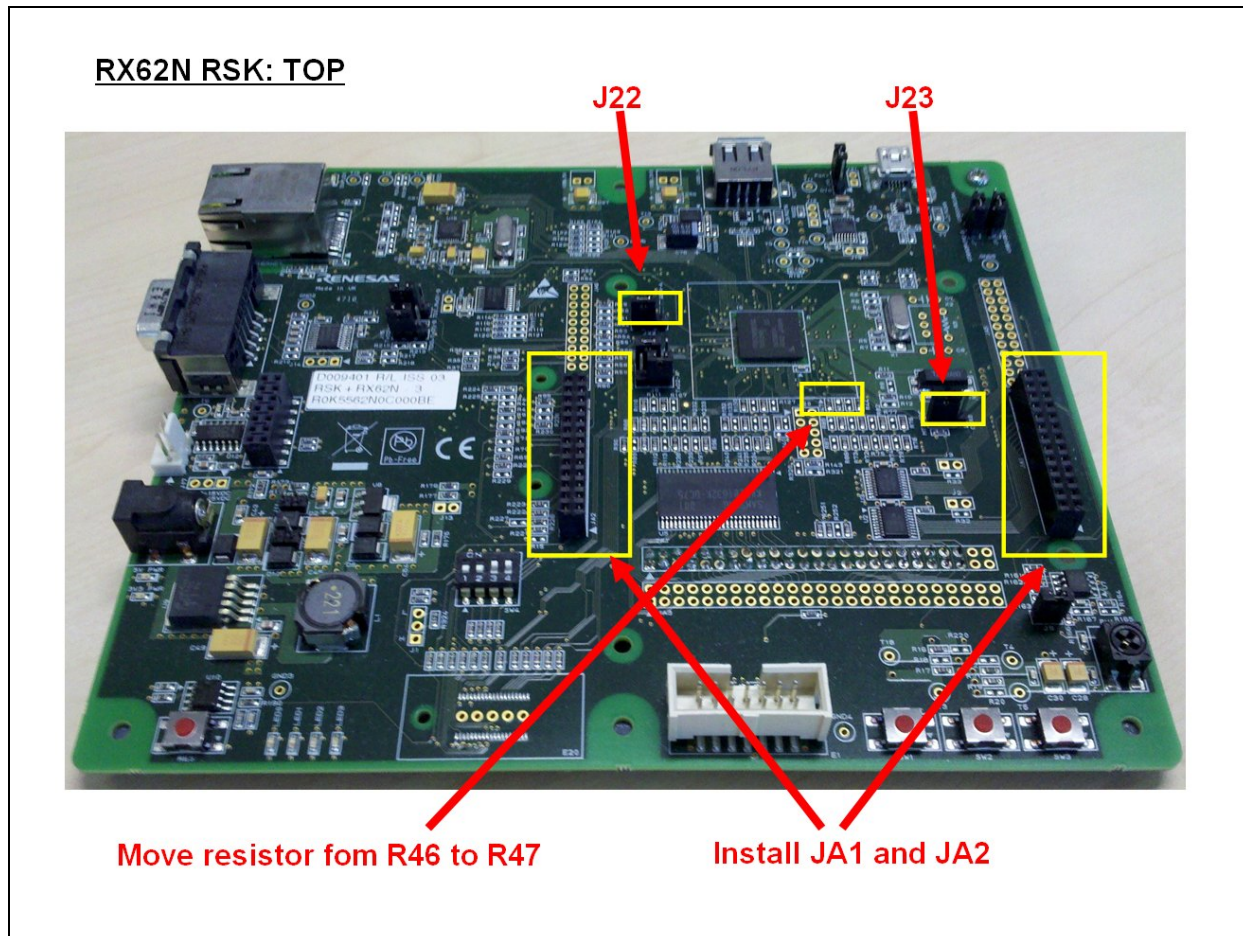
The locations of these changes on the RX62N RSK Master Bottom View can be seen as follows:

RX62N RSK: BOTTOM
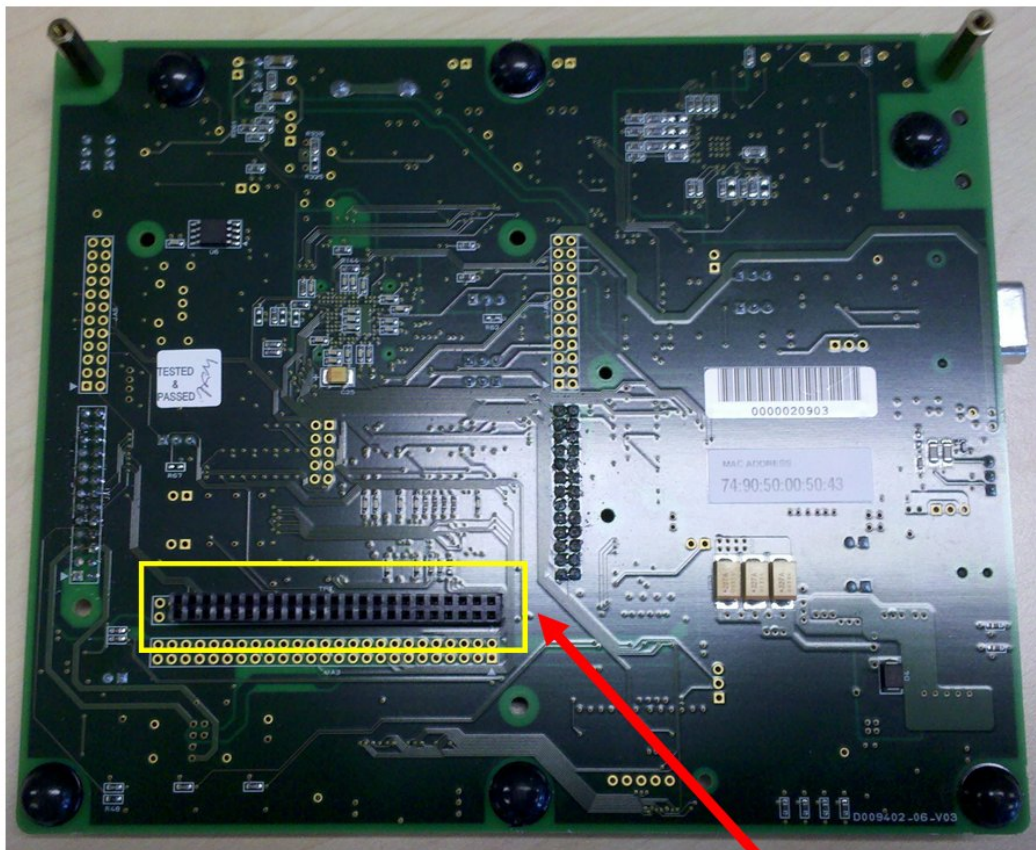
Install TFT Connector

With these changes made, the RX62N RSK Master is ready for connection with the Touch Panel as well as the Sound Board.

2.6   Slave: Hardware Setup Procedure

No changes required from the default setting. The RX62N RSK Slave should look like the following:
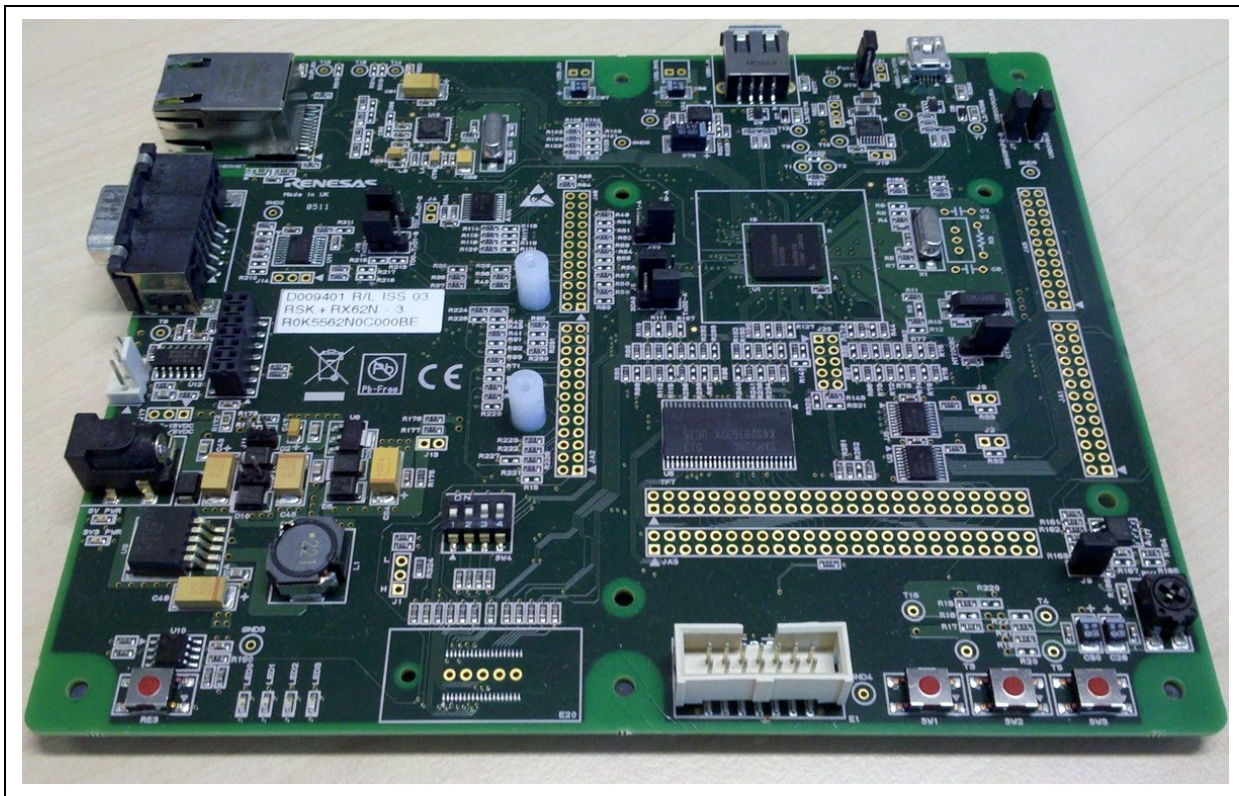
3. RX62N Demo Project Application Concepts

3.1 Application Development concept

Application code development and APIs should conform to that of the RI-600 Specification. This means that applications should be written as though they are targeted for the RI-600 platform.
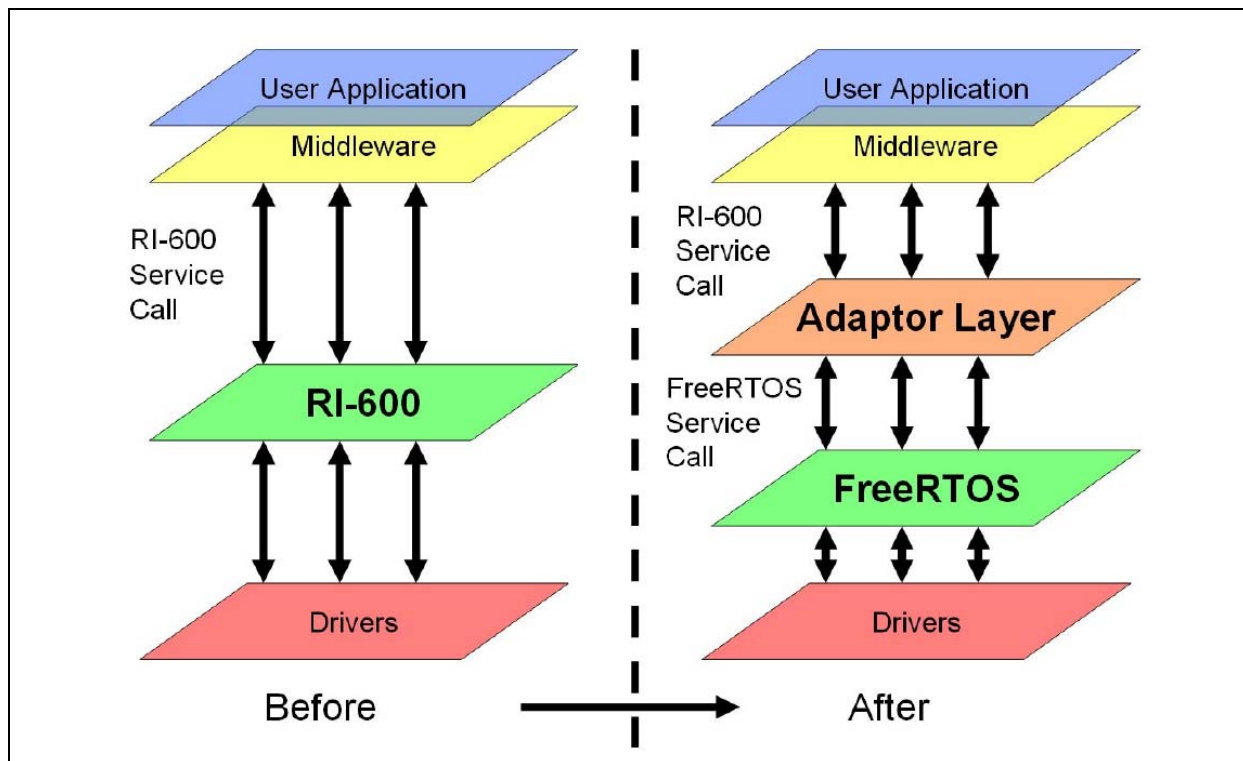
3.2 Application Code Base

Applications can be developed by using either of the provided workspaces. This allows for ease of application development and test on both the RI-600 and FreeRTOS™ platform. The workspace directories and files are linked as shown:
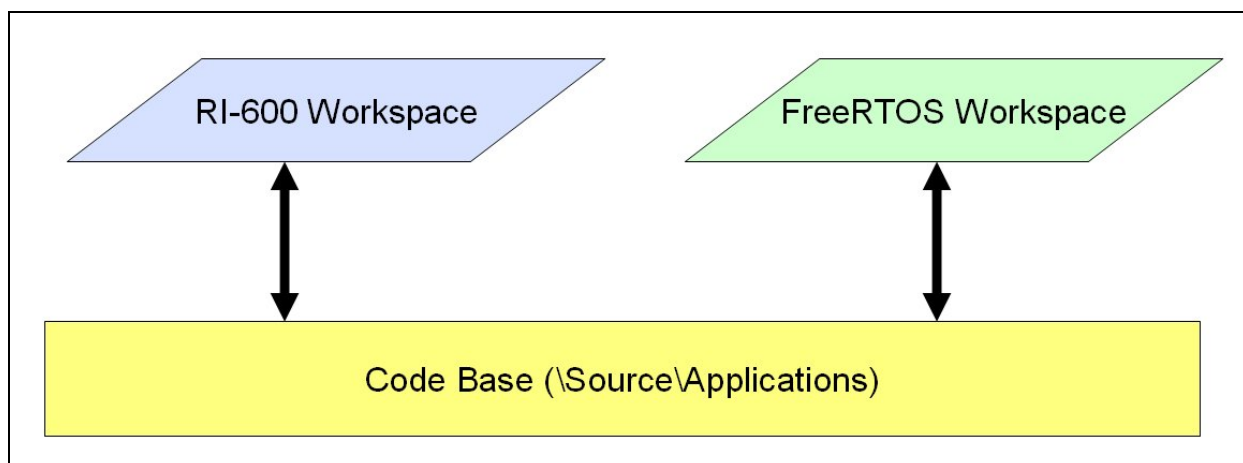
3.3   RX62N Demo Project Resources

3.3.1   Hardware Resources

The RX62N Demo Project Application has the following hardware setup:

Input clock: 12 MHz

System clock (ICLK): 96 MHz

Peripheral module clock (PCLK): 48 MHz

External bus clock (BCLK) and SDRAM clock (SDCLK): 48 MHz

3.3.2   Directory Structure

The following shows the basic folder directory whereby RX62N workspaces are placed in sub-folders of respective Renesas Compiler directory. RX62N folder without suffix _mp3 means it supports only wave and raw PCM playback. RX62N_mp3 folder has codes which supports MP3 playback but customers need to contact Local Renesas Representative to obtain the MP3 libraries.

```
Folders
   R01AN0764ES0102_RX_Multimedia_Demonstration_on_RI600_FreeRTOS
      CCRX1_0
         RX62N
            Build
            Source
         RX62N_MP3
            Build
            Source
      CCRX1_2
         RX62N
            Build
            Source
         RX62N_MP3
            Build
            Source
```
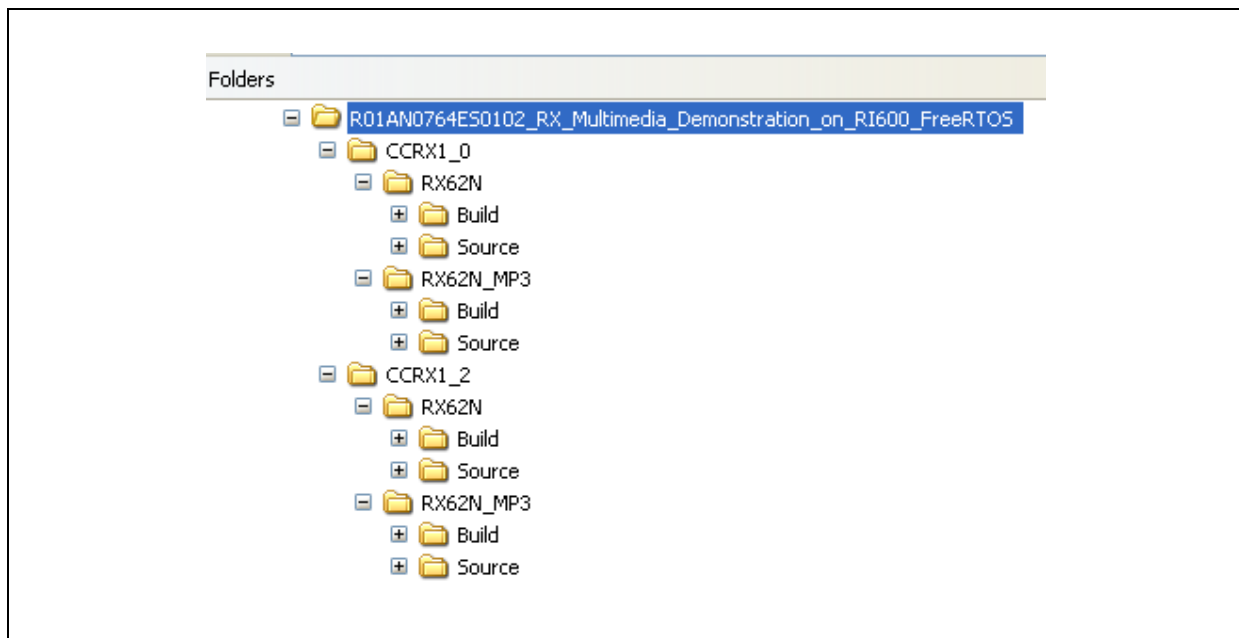
The following shows that the source directories are the same.

```
Folders
  ☐ 📁 R01AN0764ES0102_RX_Multimedia_Demonstration_on_RI600_FreeRTOS
      ☐ 📁 CCRX1_0
          ☐ 📁 RX62N
              ⊞ 📁 Build
              ☐ 📁 Source
                  ⊞ 📁 adpcm
                     📁 bench
                  ⊞ 📁 common_src_usb
                     📁 DDLCD
                  ⊞ 📁 demo_src
                  ⊞ 📁 DES
                     📁 fft
                  ⊞ 📁 FreeRTOS
                  ⊞ 📁 GUI
                  ⊞ 📁 jpeg
                  ⊞ 📁 mp3_dec
                     📁 ri600_files
                     📁 rx62n_demo_header
                  ⊞ 📁 tcpip
                     📁 touch
                     📁 wave
          ☐ 📁 RX62N_MP3
              ⊞ 📁 Build
              ☐ 📁 Source
                  ⊞ 📁 adpcm
                     📁 bench
                  ⊞ 📁 common_src_usb
                     📁 DDLCD
                  ⊞ 📁 demo_src
                  ⊞ 📁 DES
                     📁 fft
                  ⊞ 📁 FreeRTOS
                  ⊞ 📁 GUI
                  ⊞ 📁 jpeg
                  ⊞ 📁 mp3_dec
                     📁 ri600_files
                     📁 rx62n_demo_header
                  ⊞ 📁 tcpip
                     📁 touch
                     📁 wave
```
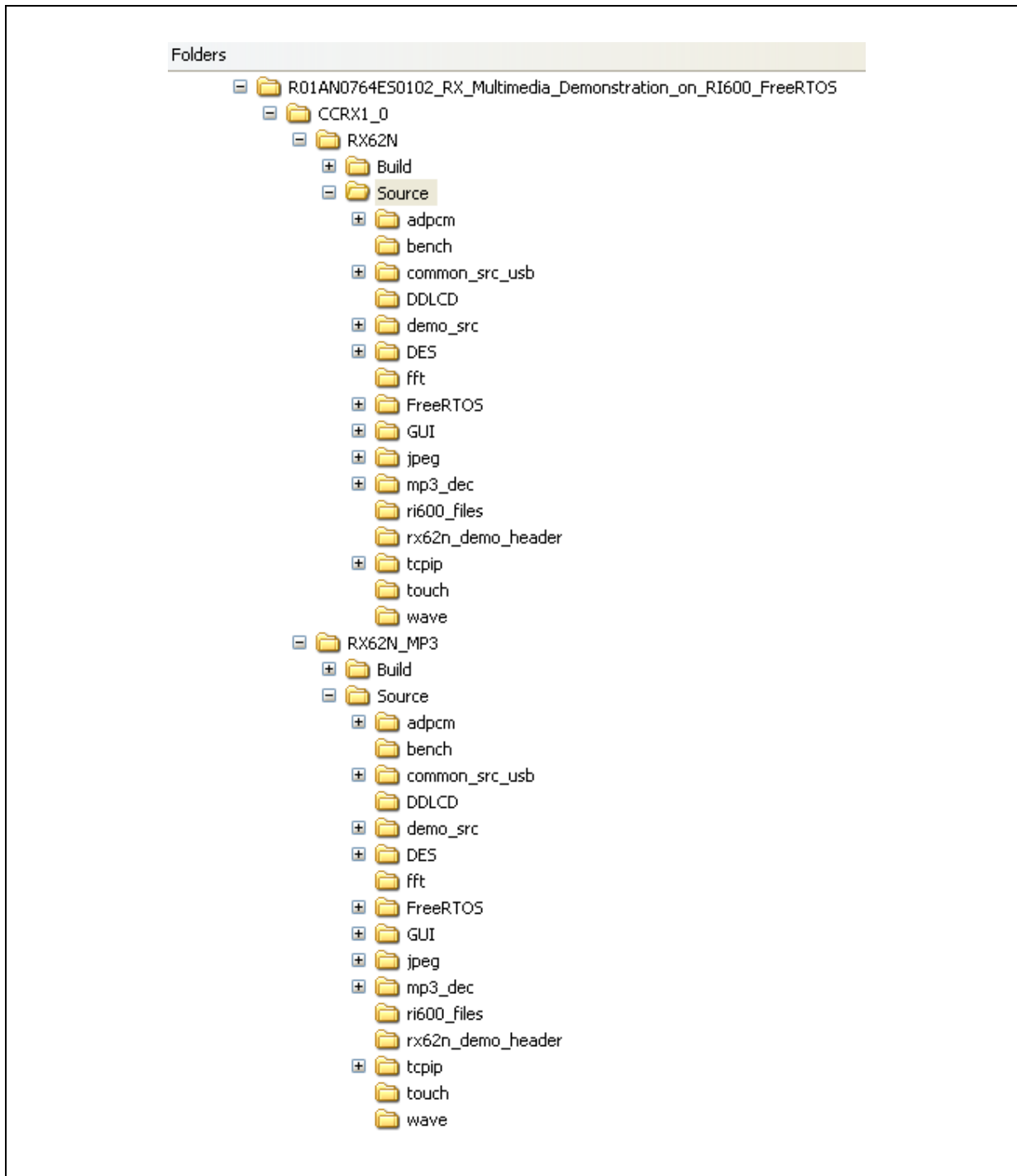
The following shows that the workspace which does not MP3 libraries.
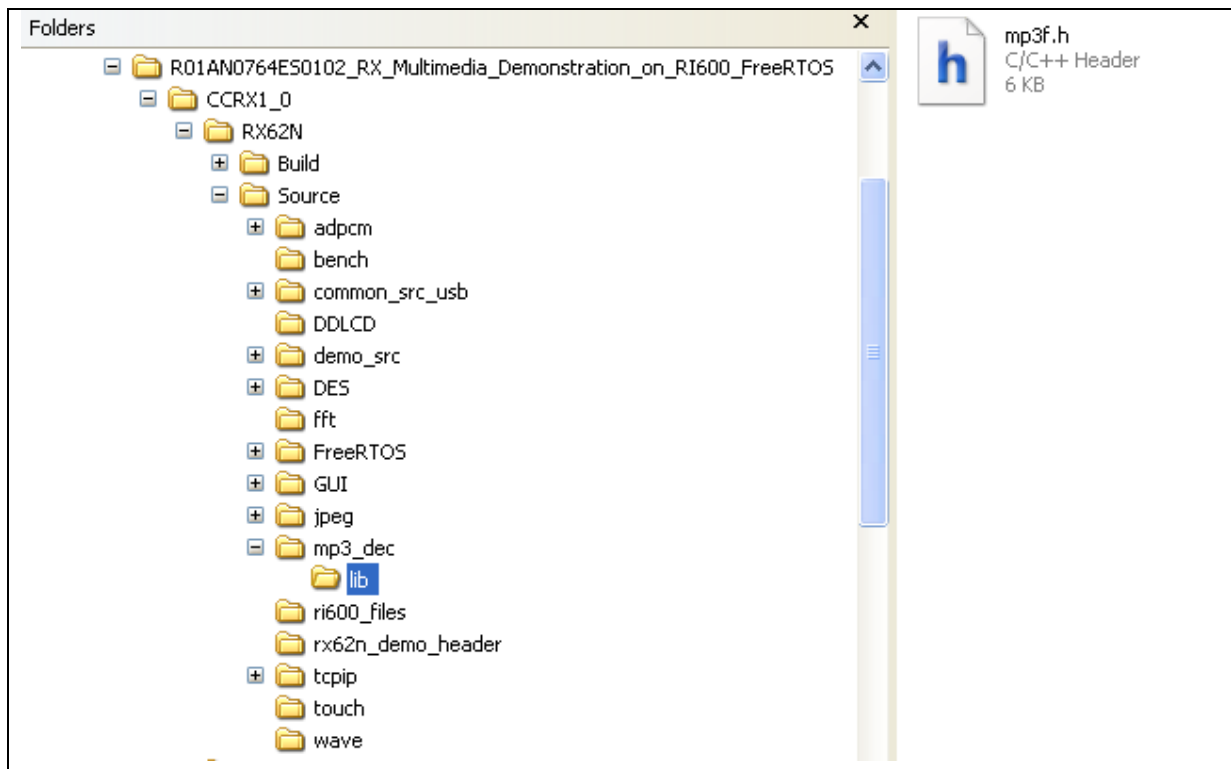
Customers are evaluating MP3. Please **place the libraries** highlighted in blue in the lib directory **under mp3_dec** as shown below
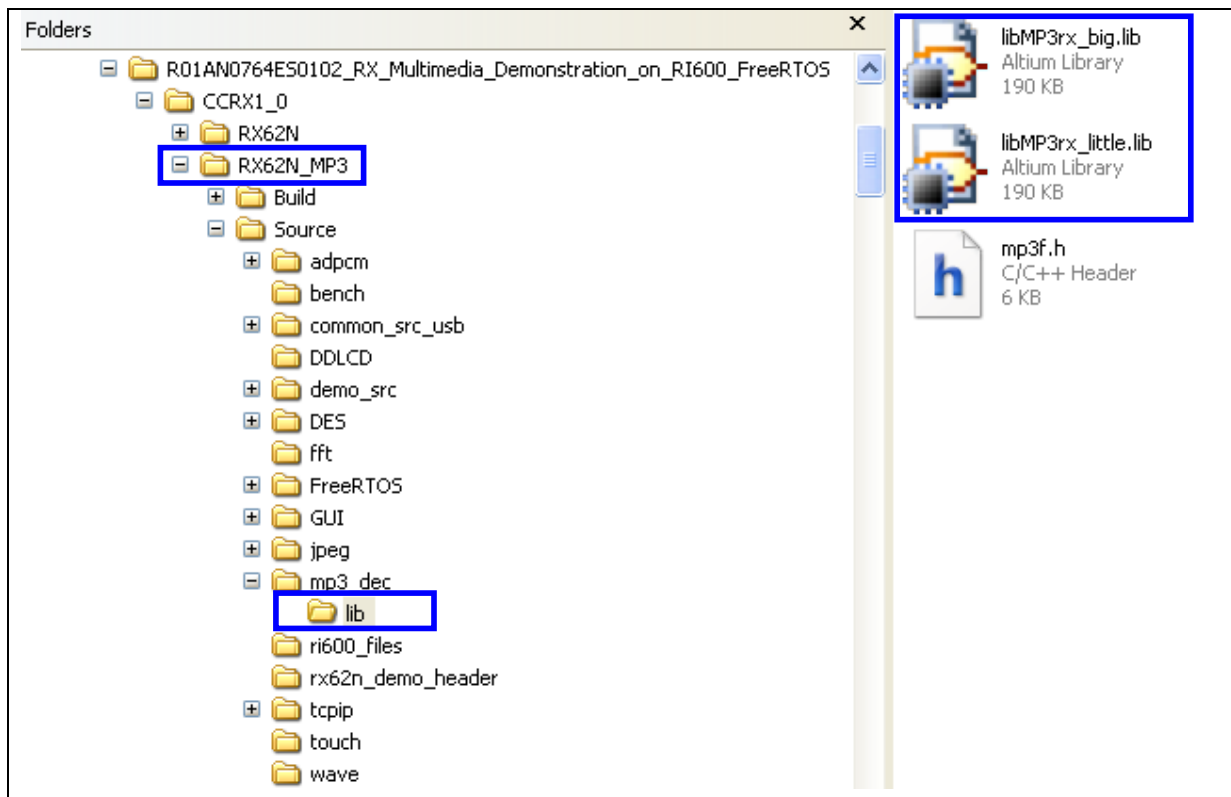
3.3.3   Master Application Resources

The RX62N Demo Project Master Application has the following Tasks:

Task Name	Description
USBC_IDLE_TSK	Renesas USB Idle Task
USBC_SMP_TSK	Renesas USB required Task
USB2_HCD_TSK	Renesas USB required Task
USB2_MGR_TSK	Renesas USB Manager Task
USB2_HUB_TSK	Renesas USB Hub Task
TCP_COM_TSK	TCP/IP Communication Task for Main Program
TCP_USB_TSK	TCP/IP Communication Task for USB
GUI_MAIN_TSK	Main GUI Task
TOUCH_MAIN_TSK	Main Touch Task
MAIN_TASK	Main Task that controls the synchronization of Tasks
USB_MONITOR	USB Monitoring Task
MP3_TSK	MP3 Task for Audio Playback of MP3, ADPCM and WAVE File formats
BENCH_DES_TSK1	DES Bench Task for DES Demonstration
BENCH_DES_TSK2	DES Bench Task for DES Demonstration

The RX62N Demo Project Master Application has the following Semaphores:

Task Name	Description
USB2_HCD_SEM	Renesas USB required Semaphore

The RX62N Demo Project Master Application has the following Mailboxes:

Task Name	Description
USB2_HCD_MBX	Mailbox used by Renesas USB
USB2_MGR_MBX	Mailbox used by Renesas USB
USB2_HUB_MBX	Mailbox used by Renesas USB
USB2_HSMP_MBX	Mailbox used by Renesas USB
USB2_CLS_MBX	Mailbox used by Renesas USB
USB2_HMSC_MBX	Mailbox used by Renesas USB
USB2_HMSCD_MBX2	Mailbox used by Renesas USB
GUI_TOUCH_MBX	Mailbox for Touch Screen processing
GUI_MAIN_MBX	Mailbox for Main GUI processing
MAIN_MBX	Mailbox for Main Task processing
TCP_COM_MBX	Mailbox for TCP Communication processing
MP3_MBX	Mailbox for MP3 Task

The RX62N Demo Project Master Application has the following Memory Pools

Task Name	Description
USB2_HCD_MPL	Memory Pool for Renesas USB
USB2_MGR_MPL	Memory Pool for Renesas USB
USB2_HUB_MPL	Memory Pool for Renesas USB
USB2_HSMP_MPL	Memory Pool for Renesas USB
USB2_CLS_MPL	Memory Pool for Renesas USB
USB2_HMSC_MPL	Memory Pool for Renesas USB
TOUCH_MPL	Memory Pool for Touch Screen Data

The RX62N Demo Project Master Application has the following Cyclic Handlers::

Task Name	Description
T4_CYC	Renesas TCP/IP Library for periodic processing
BENCH_TASK_MNGR	Bench Task Manager for cyclic switching between the 2 DES Tasks. This is used in the DES Demonstration of this project.

3.3.4   Slave Application Resources

The RX62N Demo Project Slave Application has the following Tasks:

Task Name	Description
USBC_IDLE_TSK	Renesas USB Idle Task
USBC_SMP_TSK	Renesas USB required Task
USB2_HCD_TSK	Renesas USB required Task
USB2_MGR_TSK	Renesas USB Manager Task
USB2_HUB_TSK	Renesas USB Hub Task
TCP_COM_TSK	TCP/IP Communication Task for Main Program
TCP_USB_TSK	TCP/IP Communication Task for USB

The RX62N Demo Project Slave Application has the following Semaphores:

Task Name	Description
USB2_HCD_SEM	Renesas USB required Semaphore

The RX62N Demo Project Slave Application has the following Mailboxes:

Task Name	Description
USB2_HCD_MBX	Mailbox used by Renesas USB
USB2_MGR_MBX	Mailbox used by Renesas USB
USB2_HUB_MBX	Mailbox used by Renesas USB
USB2_HSMP_MBX	Mailbox used by Renesas USB
USB2_CLS_MBX	Mailbox used by Renesas USB
USB2_HMSC_MBX	Mailbox used by Renesas USB
USB2_HMSCD_MBX2	Mailbox used by Renesas USB

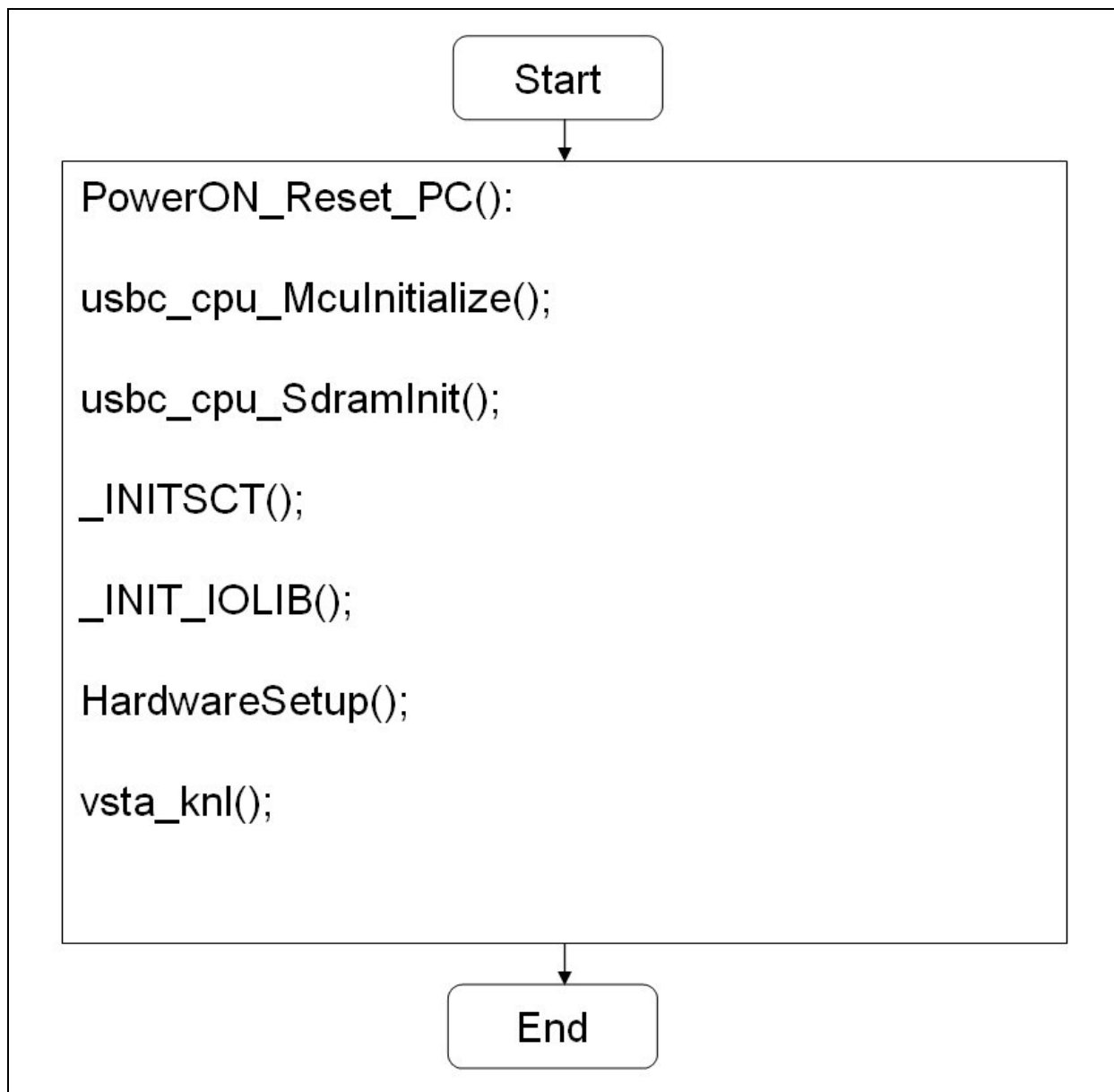The RX62N Demo Project Slave Application has the following Memory Pools

Task Name	Description
USB2_HCD_MPL	Memory Pool for Renesas USB
USB2_MGR_MPL	Memory Pool for Renesas USB
USB2_HUB_MPL	Memory Pool for Renesas USB
USB2_HSMP_MPL	Memory Pool for Renesas USB
USB2_CLS_MPL	Memory Pool for Renesas USB
USB2_HMSC_MPL	Memory Pool for Renesas USB

The RX62N Demo Project Slave Application has the following Cyclic Handlers::

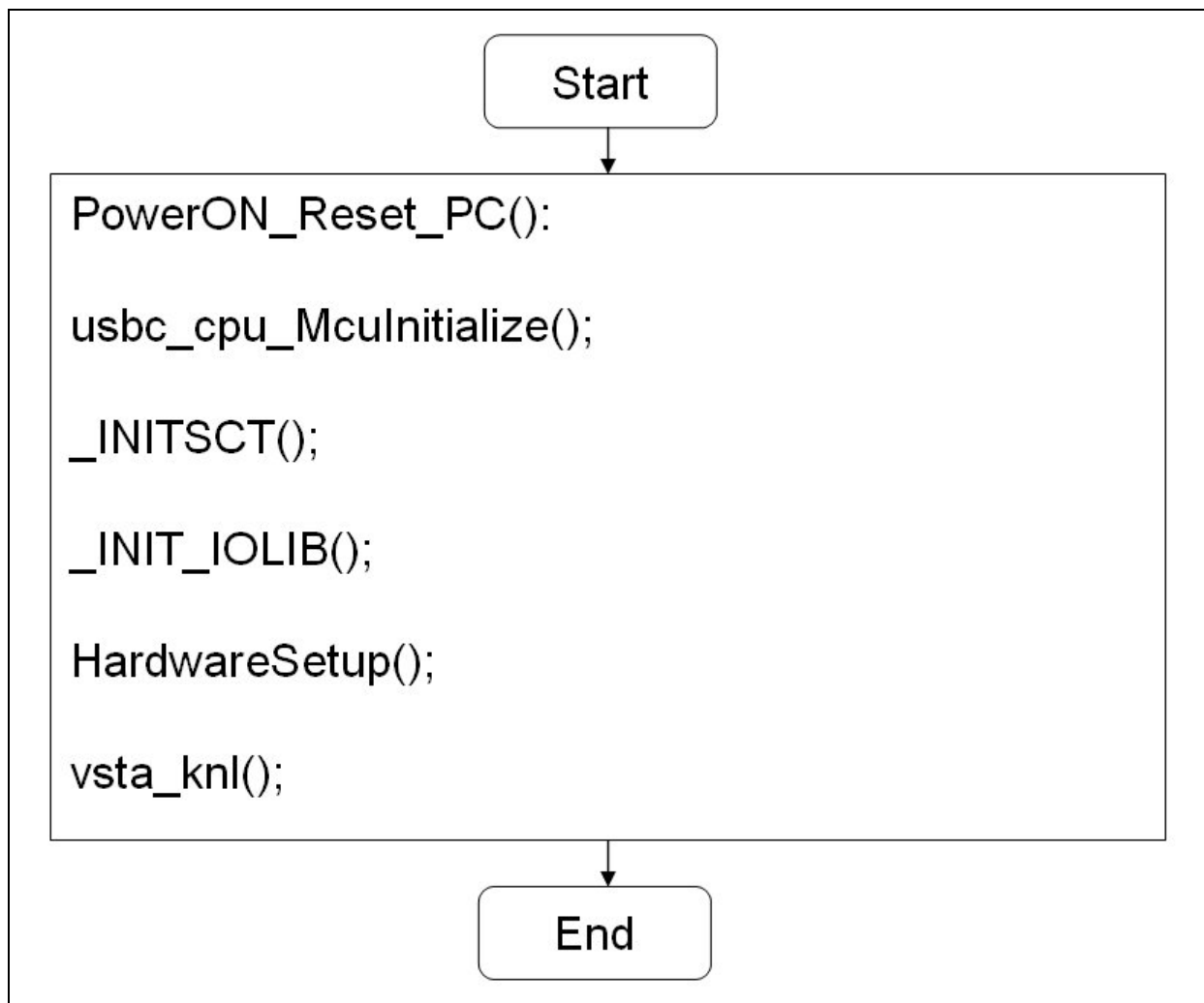| Task Name	Description
T4_CYC	Renesas TCP/IP Library for periodic processing

3.3.5   Master: Power-on Reset Application Flow

The RX62N Demo Project Master Application flowchart can be seen as follows:

```
                              ┌─────────────┐
                              │    Start    │
                              └──────┬──────┘
                                     │
                                     ▼
  ┌──────────────────────────────────────────────────────────┐
  │                                                            │
  │   PowerON_Reset_PC():                                      │
  │                                                            │
  │   usbc_cpu_McuInitialize();                                │
  │                                                            │
  │   usbc_cpu_SdramInit();                                    │
  │                                                            │
  │   _INITSCT();                                              │
  │                                                            │
  │   _INIT_IOLIB();                                           │
  │                                                            │
  │   HardwareSetup();                                         │
  │                                                            │
  │   vsta_knl();                                              │
  │                                                            │
  └──────────────────────────────┬─────────────────────────────┘
                                  │
                                  ▼
                           ┌─────────────┐
                           │     End     │
                           └─────────────┘
```
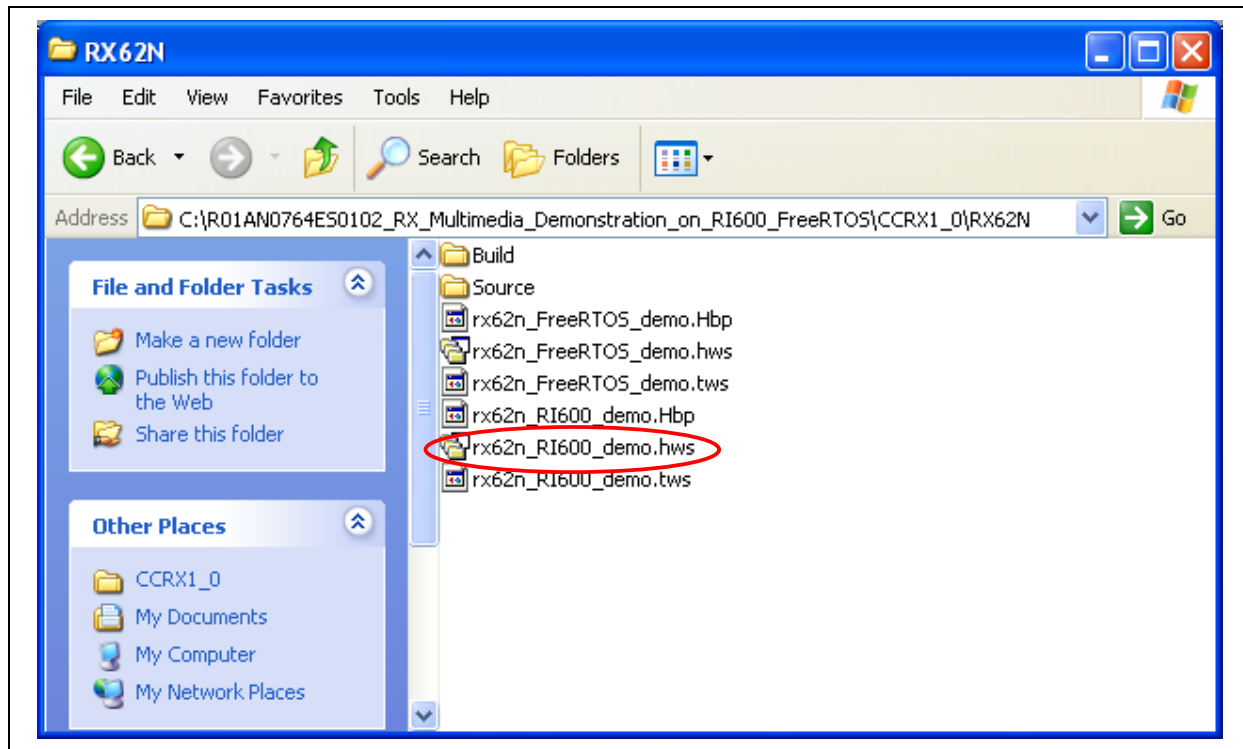
3.3.6　　Slave: Power-on Reset Application Flow

The RX62N Demo Project Slave Application flowchart can be seen as follows:
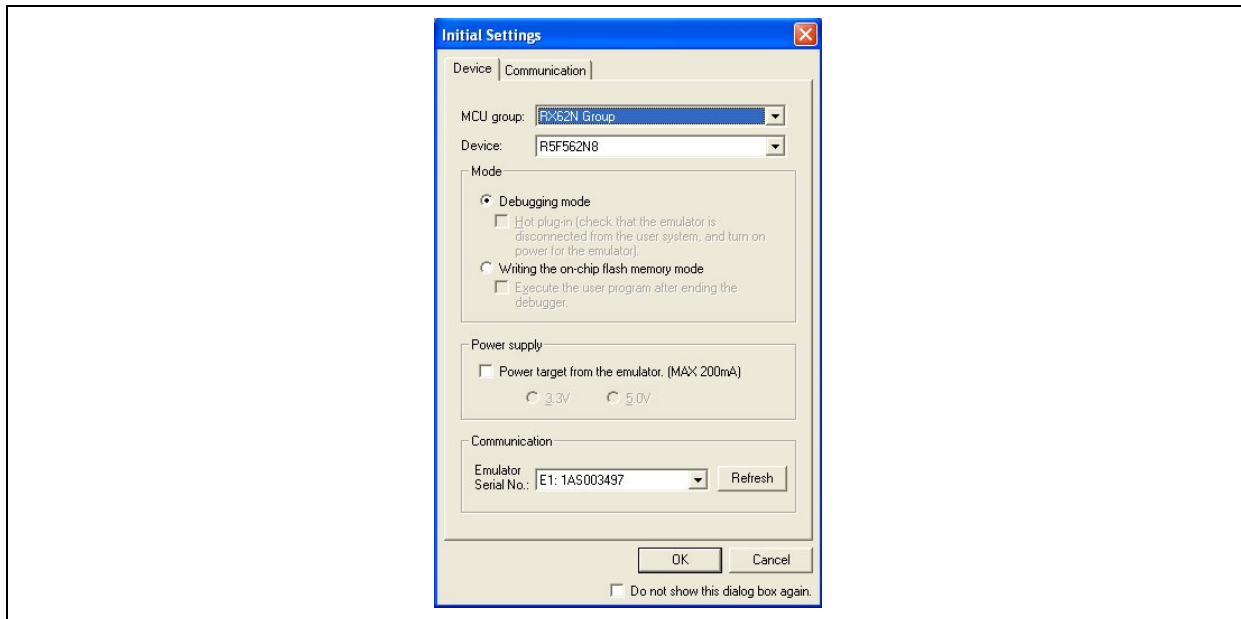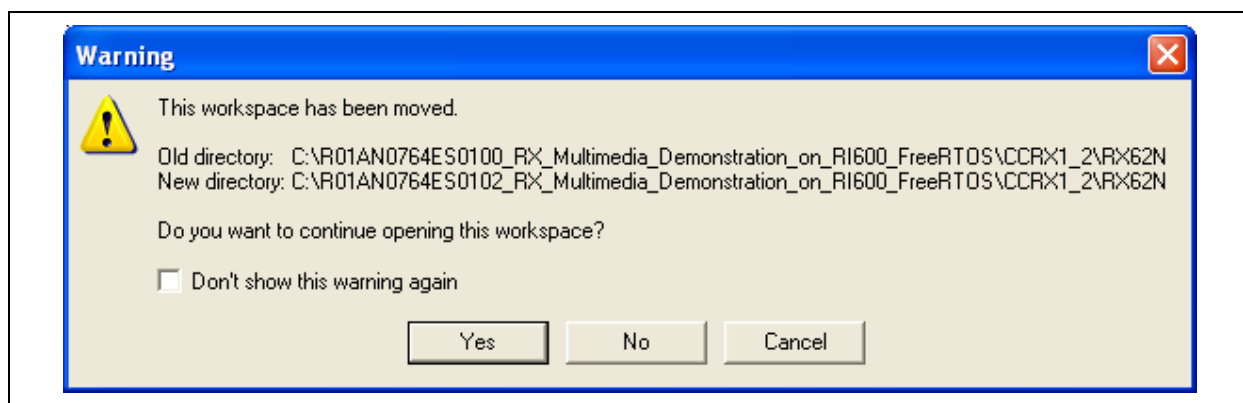
```
                            ┌──────────────┐
                            │    Start     │
                            └──────┬───────┘
                                   │
                                   ▼
  ┌────────────────────────────────────────────────────────┐
  │                                                          │
  │  PowerON_Reset_PC():                                     │
  │                                                          │
  │  usbc_cpu_McuInitialize();                               │
  │                                                          │
  │  _INITSCT();                                             │
  │                                                          │
  │  _INIT_IOLIB();                                          │
  │                                                          │
  │  HardwareSetup();                                        │
  │                                                          │
  │  vsta_knl();                                             │
  │                                                          │
  └────────────────────────────┬─────────────────────────────┘
                                   │
                                   ▼
                            ┌──────────────┐
                            │     End      │
                            └──────────────┘
```

4.   RI-600: Master RSK

4.1   Running Master RSK

Open the rx62n_RI600_demo.hws Workspace file as shown below:

Select 'Yes' in the following or similar prompt:

Connect to the RX62N RSK with the following settings:

In the next screen, configure as follows to complete the connection:

Ensure that the x62n_RI600_demo_master Project is selected as shown:
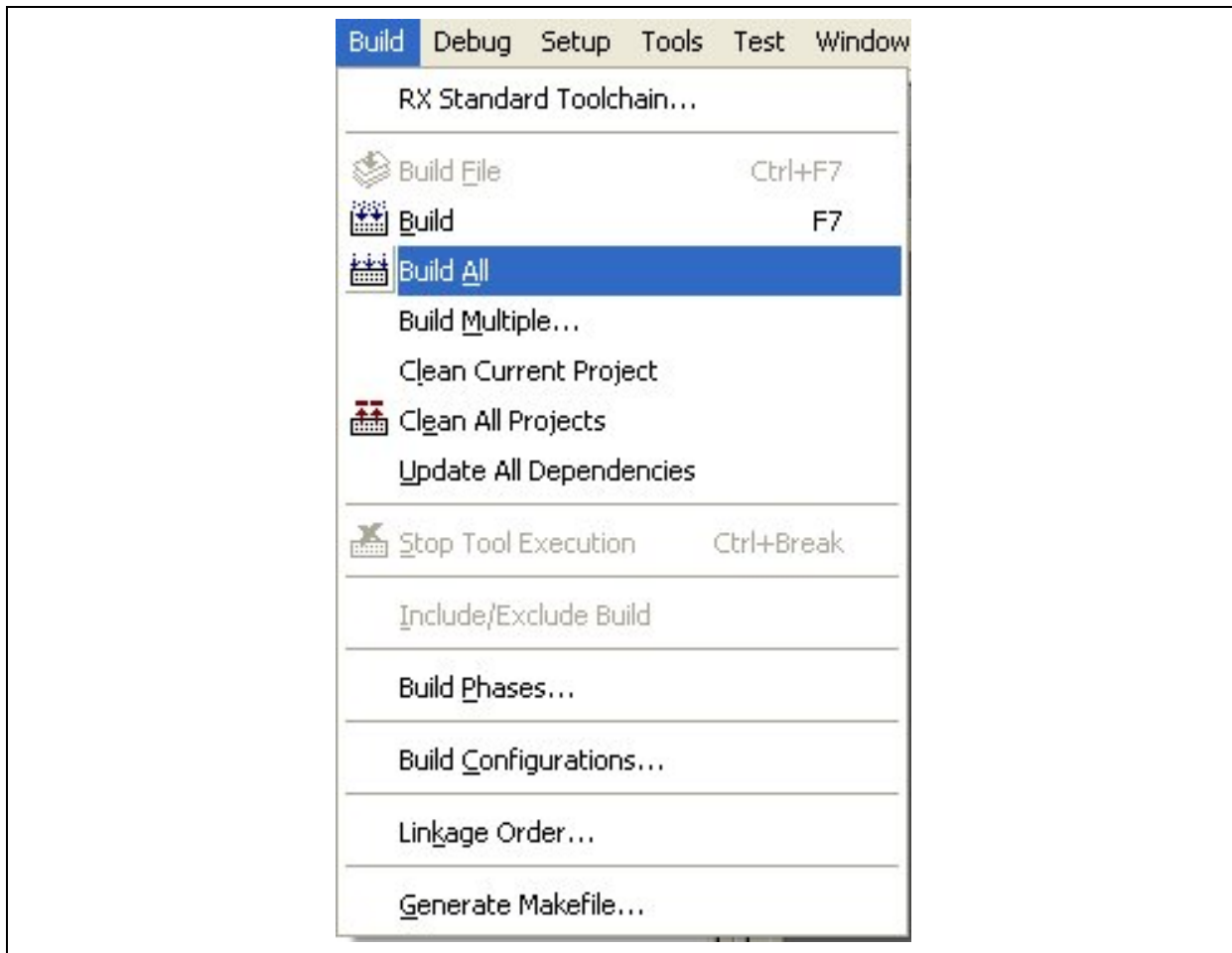
Goto Build→Build All as shown:

Click 'Yes to all' when prompted with the following window:
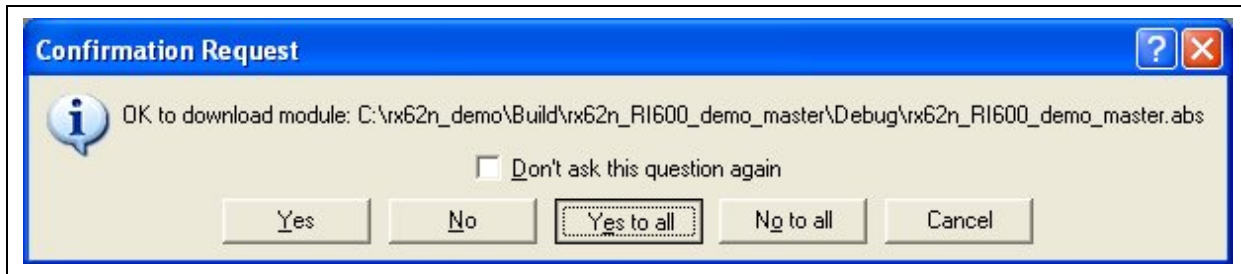
Press F5 or select Debug→Go to start program execution.

4.2   Compiler Settings

The compiler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -
include="$(PROJDIR)\Debug","$(WORKSPDIR)\Source\demo_src\master\hew_files","$(WORKSPDIR)\Source\com
mon_src_usb\MSC2FW\include","$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include","$(WORKSPDI
R)\Source\common_src_usb\MSC2FW\TFAT\lib","$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_sr
c","C:\Program Files\Renesas\RI600-
4\v100r02\inc600","$(WORKSPDIR)\Source\tcpip\t4_lib","$(WORKSPDIR)\Source\tcpip\driver","$(WORKSPDIR)\
Source\ddlcd","$(WORKSPDIR)\Source\gui","$(WORKSPDIR)\Source\gui\lib","$(WORKSPDIR)\Source\touch","$(
WORKSPDIR)\Source\jpeg","$(WORKSPDIR)\Source\jpeg\lib","$(WORKSPDIR)\Source\rx62n_demo_header","$(
WORKSPDIR)\Source\mp3_dec\lib","$(WORKSPDIR)\Source\mp3_dec","$(WORKSPDIR)\Source\bench","$(WOR
KSPDIR)\Source\adpcm","$(WORKSPDIR)\Source\adpcm\lib","$(WORKSPDIR)\Source\wave","$(WORKSPDIR)\S
ource\DES\include","$(WORKSPDIR)\Source\FreeRTOS\Adaptor","$(WORKSPDIR)\Source\bench\aes","$(WORKS
PDIR)\Source\bench\aes\lib","C:\Program Files\Renesas\RI600-4\v100r01\inc600" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,__RX600__,_TCP,_UDP,USBC_SDRAM_USE_PP,__WGP16__,RX,MP3Float,MP3F_NO_SINGLE_WRA
PPER,__ADAPTOR_RI_600__ -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -debug -nostuff -speed -approxdiv -
simple_float_conv -nologo -ri600_preinit_mrc

The compiler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(PROJDIR)\Debug" -include="$(WORKSPDIR)\Source\demo_src\master\hew_files" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src" -include="C:\Program
Files\Renesas\RI600-4\v100r02\inc600" -include="$(WORKSPDIR)\Source\tcpip\t4_lib" -
include="$(WORKSPDIR)\Source\tcpip\driver" -include="$(WORKSPDIR)\Source\ddlcd" -
include="$(WORKSPDIR)\Source\gui" -include="$(WORKSPDIR)\Source\gui\lib" -
include="$(WORKSPDIR)\Source\touch" -include="$(WORKSPDIR)\Source\jpeg" -
include="$(WORKSPDIR)\Source\jpeg\lib" -include="$(WORKSPDIR)\Source\rx62n_demo_header" -
include="$(WORKSPDIR)\Source\mp3_dec\lib" -include="$(WORKSPDIR)\Source\mp3_dec" -
include="$(WORKSPDIR)\Source\bench" -include="$(WORKSPDIR)\Source\adpcm" -
include="$(WORKSPDIR)\Source\adpcm\lib" -include="$(WORKSPDIR)\Source\wave" -
include="$(WORKSPDIR)\Source\DES\include" -include="$(WORKSPDIR)\Source\FreeRTOS\Adaptor" -
include="$(WORKSPDIR)\Source\FreeRTOS" -include="$(WORKSPDIR)\Source\ri600_files" -include="C:\Program
Files\Renesas\RI600-4\v100r01\inc600" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,__RX600__,_TCP,_UDP,USBC_SDRAM_USE_PP,__WGP16__,RX,MP3Float,MP3F_NO_SINGLE_WRA
PPER,__ADAPTOR_RI_600__ -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -debug -section=L=C -nostuff -
speed -approxdiv -simple_float_conv -nologo -ri600_preinit_mrc

4.3   Assembler Settings

The assembler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -include="$(PROJDIR)\Debug" -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

The assembler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(PROJDIR)\Debug" -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

4.4   Linker Settings

The linker settings for Renesas RX Toolchain Version 1.0 are as follows:

-define=FIXED_VECT_20=0ffffffff -define=FIXED_VECT_21=0ffffffff -define=FIXED_VECT_22=0ffffffff -
define=FIXED_VECT_23=0ffffffff -define=FIXED_VECT_24=0ffffffff -define=FIXED_VECT_25=0ffffffff -
define=FIXED_VECT_26=0ffffffff -define=FIXED_VECT_27=0ffffffff -define=FIXED_VECT_28=0ffffffff -
define=FIXED_VECT_29=0ffffffff -define=FIXED_VECT_30=0ffffffff -noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -nooptimize -start=R_DTCtable/00, & B_DTCtable, &
BDTC_TABLE/0200, & B_RX_DESC, & B_TX_DESC, & B_RX_BUFF, & B_TX_BUFF/01000, & SI, &
SURI_STACK, & B, & R, & R_2, & R_1, & R_usblib, & R_hcd, & R_pcd, & R_descriptor, & R_hub, & R_vndr, &
R_eletest, & R_smpl, & R_Dummy, & R_testdata, & R_schedule, & R_rx62n, & R_hmsc, & B_2, & B_1, & B_usblib,
& B_hcd, & B_pcd, & B_descriptor, & B_hub, & B_vndr, & B_eletest, & B_smpl, & B_Dummy, & B_testdata, &
B_schedule, & B_rx62n, & B_hmsc, & BRI_RAM, & BRI_HEAP, & MP3WORK_IN, & BMP3F, & MP32WAV, &
BRINGBUF/03000, & BDD_RASTERS*, & BJPEG*, & BGUI_WORK*, & READ_FILE, &
MAIN_TASK_RAM/08000000, & INTERRUPT_VECTOR, & P*, & C*, & D*, & W*/0FFF80000, &
JPEG/0FFFF0000, & FIX_INTERRUPT_VECTOR/0FFFFFF80 -nologo -stack -
binary="$(WORKSPDIR)\Source\jpeg\title.jpg"(JPEG:4,_jpgeg_title) -library="ri600lit.lib" -
library="$(WORKSPDIR)\Source\gui\lib\libwgpRX_LE_16.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT2_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\jpeg\lib\RXjpegd.lib" -library="$(WORKSPDIR)\Source\fft\rfft512.lib" -
library="$(WORKSPDIR)\Source\bench\aes\lib\RXaes256little.lib" -
library="$(WORKSPDIR)\Source\adpcm\lib\s2_rx_little_v100.lib" -
library="$(WORKSPDIR)\Source\DES\lib\des_rx_little_v100.lib" -output="$(CONFIGDIR)\$(PROJECTNAME).abs"
-end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -form=stype -
output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

The linker settings for Renesas RX Toolchain Version 1.2 are as follows:

-define=FIXED_VECT_20=0ffffffff -define=FIXED_VECT_21=0ffffffff -define=FIXED_VECT_22=0ffffffff -
define=FIXED_VECT_23=0ffffffff -define=FIXED_VECT_24=0ffffffff -define=FIXED_VECT_25=0ffffffff -
define=FIXED_VECT_26=0ffffffff -define=FIXED_VECT_27=0ffffffff -define=FIXED_VECT_28=0ffffffff -
define=FIXED_VECT_29=0ffffffff -define=FIXED_VECT_30=0ffffffff -noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -nooptimize -
start=R_DTCtable/00,B_DTCtable,BDTC_TABLE/0200,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF/010
00,SI,SURI_STACK,B,R,R_2,R_1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,
R_testdata,R_schedule,R_rx62n,R_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_sm
pl,B_Dummy,B_testdata,B_schedule,B_rx62n,B_hmsc,BRI_RAM,BRI_HEAP,MP3WORK_IN,BMP3F,MP32WAV,B
RINGBUF/03000,BDD_RASTERS*,BJPEG*,BGUI_WORK*,READ_FILE,MAIN_TASK_RAM/08000000,INTERR
UPT_VECTOR,P*,C*,D*,W*/0FFF80000,JPEG/0FFFF0000,FIX_INTERRUPT_VECTOR/0FFFFFF80 -nologo -
stack -binary="$(WORKSPDIR)\Source\jpeg\title.jpg"(JPEG:4,_jpgeg_title) -library="ri600lit.lib" -
library="$(WORKSPDIR)\Source\gui\lib\libwgpRX_LE_16.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT2_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\jpeg\lib\RXjpegd.lib" -library="$(WORKSPDIR)\Source\fft\rfft512.lib" -
library="$(WORKSPDIR)\Source\adpcm\lib\s2_rx_little_v100.lib" -
library="$(WORKSPDIR)\Source\DES\lib\des_rx_little_v100.lib" -output="$(CONFIGDIR)\$(PROJECTNAME).abs"
-end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -form=stype -
output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

5. RI-600: Slave RSK

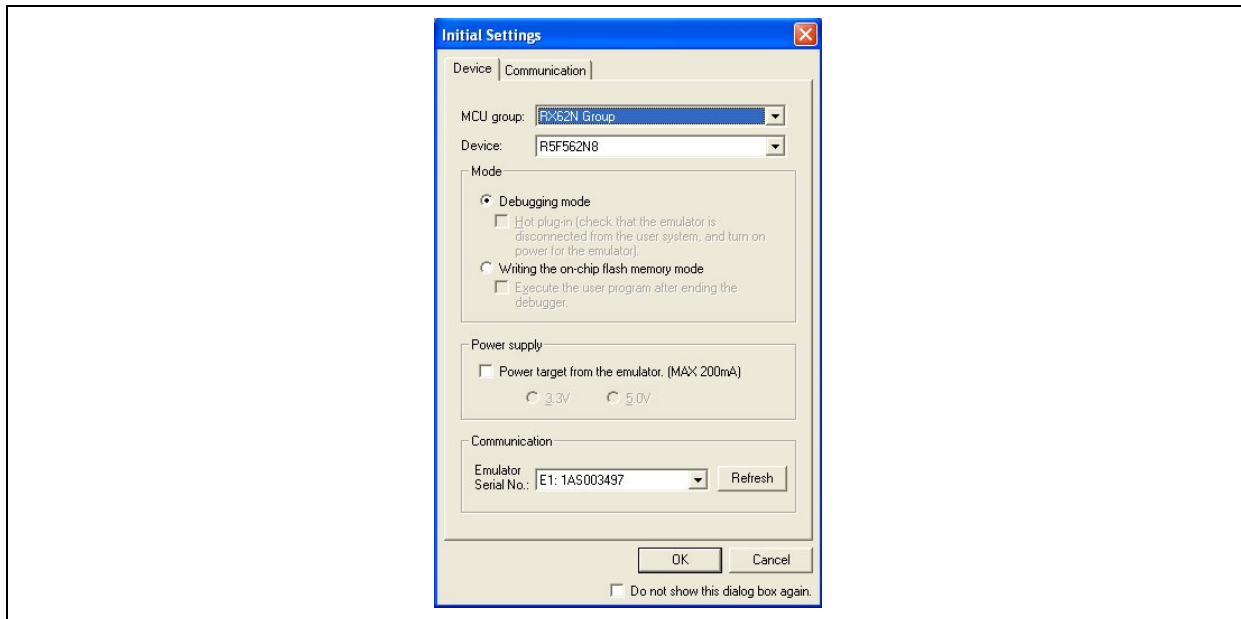### 5.1 Running Master RSK
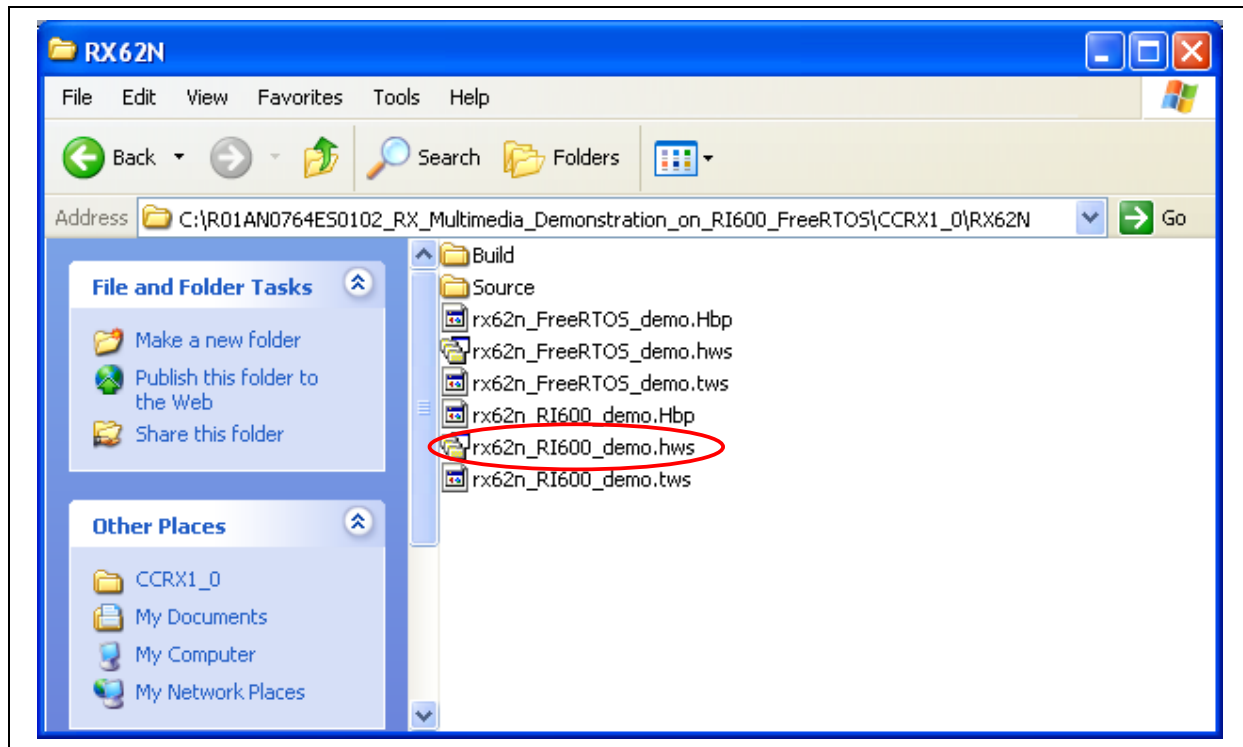
Open the rx62n_RI600_demo.hws Workspace file as shown below:
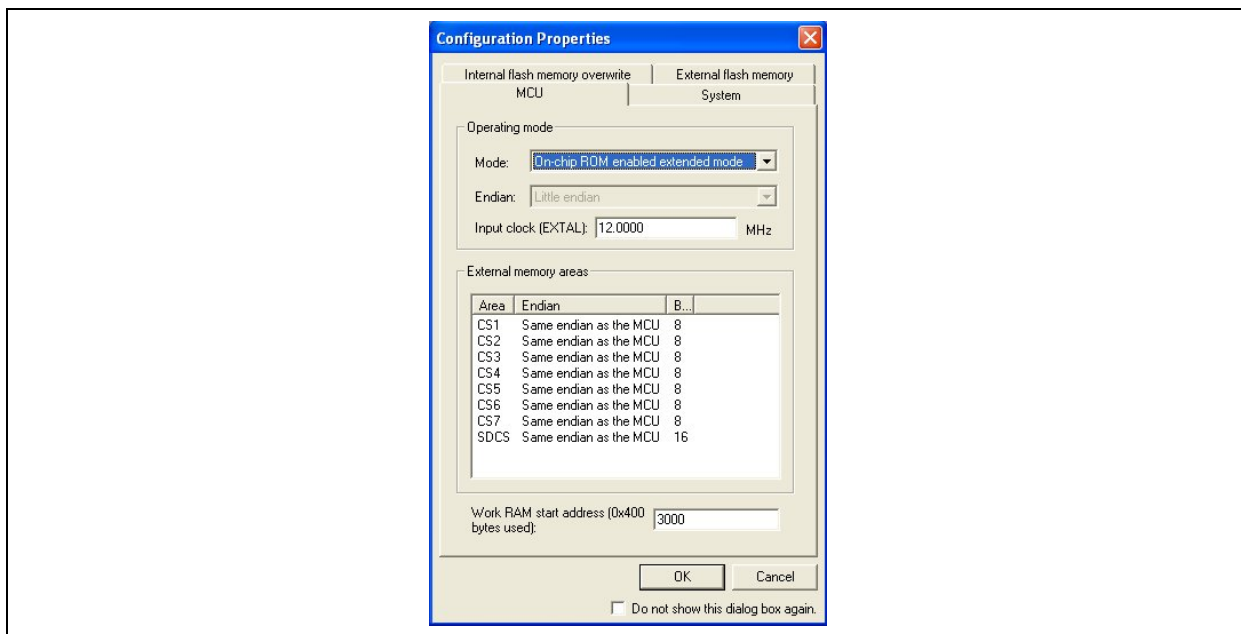

Select 'Yes' in the following or similar prompt:
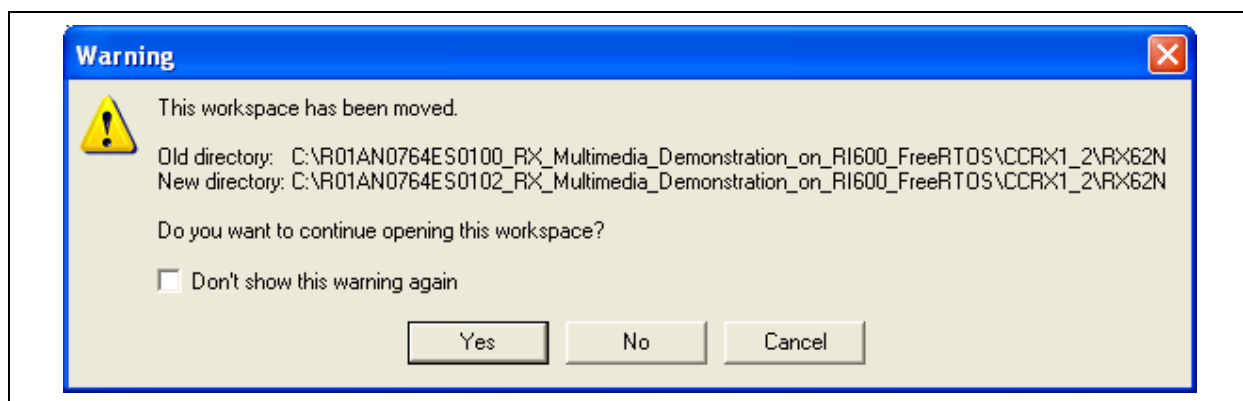
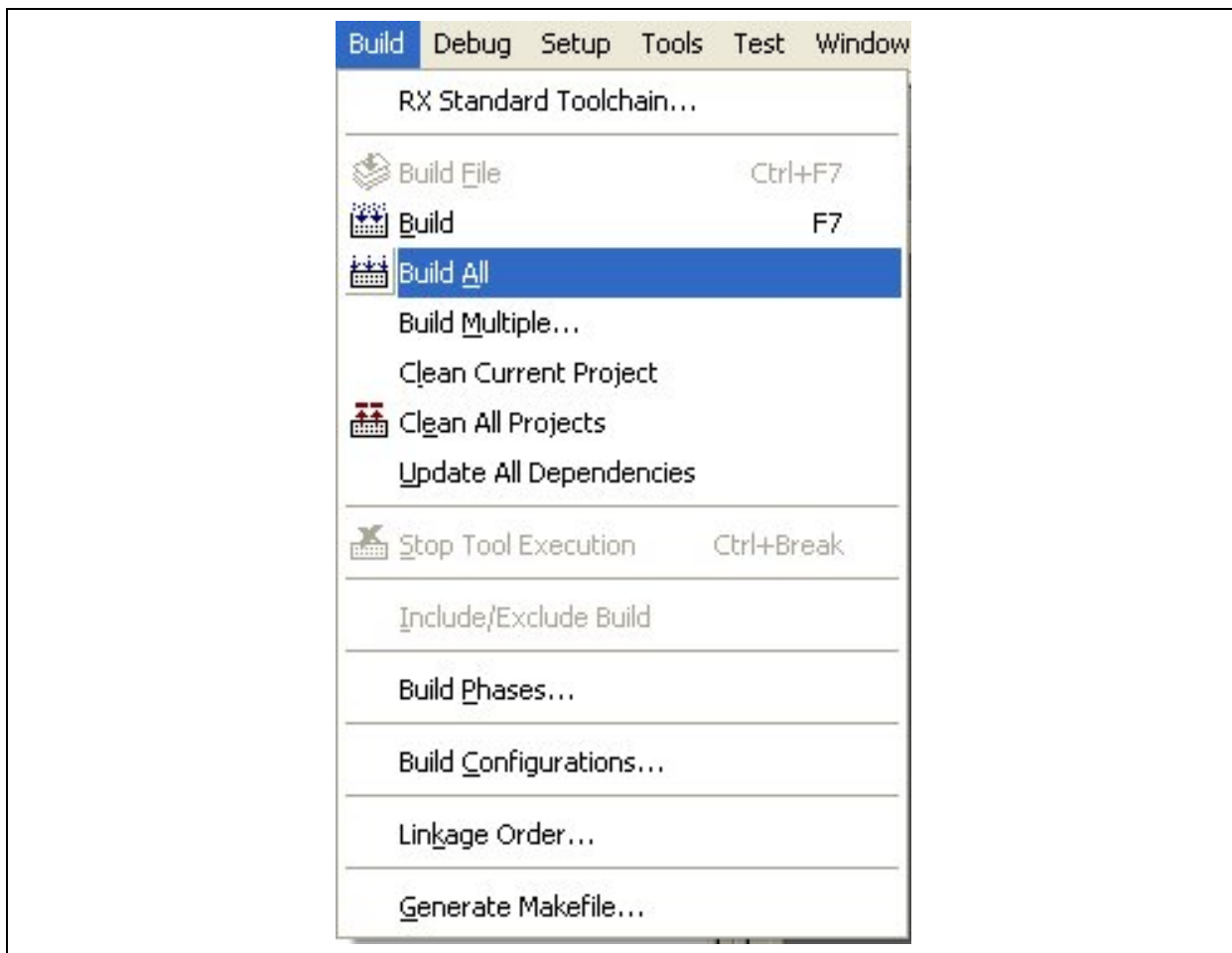Connect to the RX62N RSK with the following settings:

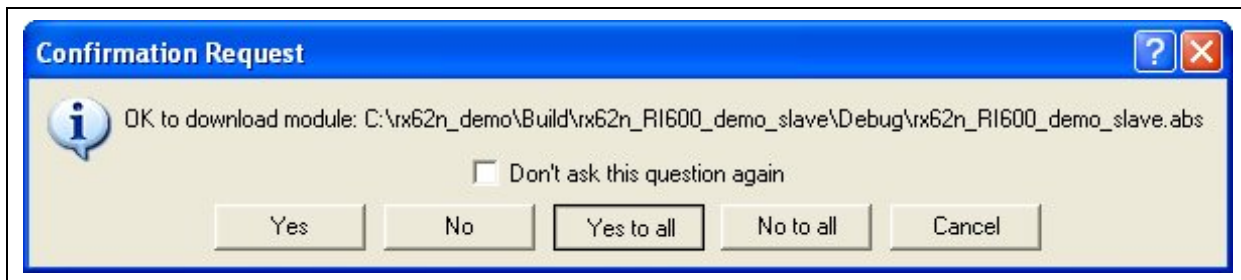In the next screen, configure as follows to complete the connection:

Ensure that the x62n_RI600_demo_slave Project is selected as shown:

Goto Build→Build All as shown:

Click 'Yes to all' when prompted with the following window:

Press F5 or select Debug→Go to start program execution.

5.2   Compiler Settings

The compiler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -
include="$(CONFIGDIR)","$(WORKSPDIR)\Source\demo_src\slave\hew_files","$(WORKSPDIR)\Source\common_
src_usb\MSC2FW\include","$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include","$(WORKSPDIR)\So
urce\common_src_usb\MSC2FW\TFAT\lib","$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src","C
:\Program Files\Renesas\RI600-
4\v100r02\inc600","$(WORKSPDIR)\Source\tcpip\driver","$(WORKSPDIR)\Source\tcpip\t4_lib","$(WORKSPDIR)\
Source\rx62n_demo_header","C:\Program Files\Renesas\RI600-4\v100r01\inc600" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,_TCP,_UDP,__RX600__,__ADAPTOR_RI_600__ -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -
debug -nostuff -speed -nologo -ri600_preinit_mrc

The compiler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(CONFIGDIR)" -include="$(WORKSPDIR)\Source\demo_src\slave\hew_files" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src" -include="C:\Program
Files\Renesas\RI600-4\v100r02\inc600" -include="$(WORKSPDIR)\Source\tcpip\driver" -
include="$(WORKSPDIR)\Source\tcpip\t4_lib" -include="$(WORKSPDIR)\Source\rx62n_demo_header" -
include="$(WORKSPDIR)\Source\ri600_files" -include="$(WORKSPDIR)\Source\FreeRTOS" -
include="$(WORKSPDIR)\Source\FreeRTOS\Adaptor" -include="C:\Program Files\Renesas\RI600-4\v100r01\inc600"
-
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,_TCP,_UDP,__RX600__,__ADAPTOR_RI_600__ -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -
debug -section=L=C -nostuff -speed -nologo -ri600_preinit_mrc

5.3   Assembler Settings

The assembler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -include="$(PROJDIR)\Debug" -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

The assembler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(PROJDIR)\Debug" -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

5.4   Linker Settings

The linker settings for Renesas RX Toolchain Version 1.0 are as follows:

-define=FIXED_VECT_20=0ffffffff -define=FIXED_VECT_21=0ffffffff -define=FIXED_VECT_22=0ffffffff -define=FIXED_VECT_23=0ffffffff -define=FIXED_VECT_24=0ffffffff -define=FIXED_VECT_25=0ffffffff -define=FIXED_VECT_26=0ffffffff -define=FIXED_VECT_27=0ffffffff -define=FIXED_VECT_28=0ffffffff -define=FIXED_VECT_29=0ffffffff -define=FIXED_VECT_30=0ffffffff -noprelink -rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCtable=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map" -show=symbol,reference,xreference,total_size,vector -nooptimize -start=R_DTCtable/00,B_DTCtable/0200,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF/01000,SI,SURI_STACK,B,R,R_2,R_1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_schedule,R_rx62n,R_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B_testdata,B_schedule,B_rx62n,B_hmsc,BRI_RAM,BRI_HEAP/03000,READ_FILE,MAIN_TASK_RAM/08000000,INTERRUPT_VECTOR,P*,C*,D*,W*/0FFF80000,FIX_INTERRUPT_VECTOR/0FFFFFF80 -nologo -library="ri600lit.lib" -output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

The linker settings for Renesas RX Toolchain Version 1.2 are as follows:

-define=FIXED_VECT_20=0ffffffff -define=FIXED_VECT_21=0ffffffff -define=FIXED_VECT_22=0ffffffff -define=FIXED_VECT_23=0ffffffff -define=FIXED_VECT_24=0ffffffff -define=FIXED_VECT_25=0ffffffff -define=FIXED_VECT_26=0ffffffff -define=FIXED_VECT_27=0ffffffff -define=FIXED_VECT_28=0ffffffff -define=FIXED_VECT_29=0ffffffff -define=FIXED_VECT_30=0ffffffff -noprelink -rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCtable=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map" -show=symbol,reference,xreference,total_size,vector -nooptimize -start=R_DTCtable/00,B_DTCtable/0200,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF/01000,SI,SURI_STACK,B,R,R_2,R_1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_schedule,R_rx62n,R_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B_testdata,B_schedule,B_rx62n,B_hmsc,BRI_RAM,BRI_HEAP/03000,READ_FILE,MAIN_TASK_RAM/08000000,INTERRUPT_VECTOR,P*,C*,D*,W*/0FFF80000,FIX_INTERRUPT_VECTOR/0FFFFFF80 -nologo -library="ri600lit.lib" -output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

6. FreeRTOS™: Master RSK

6.1   Running Master RSK
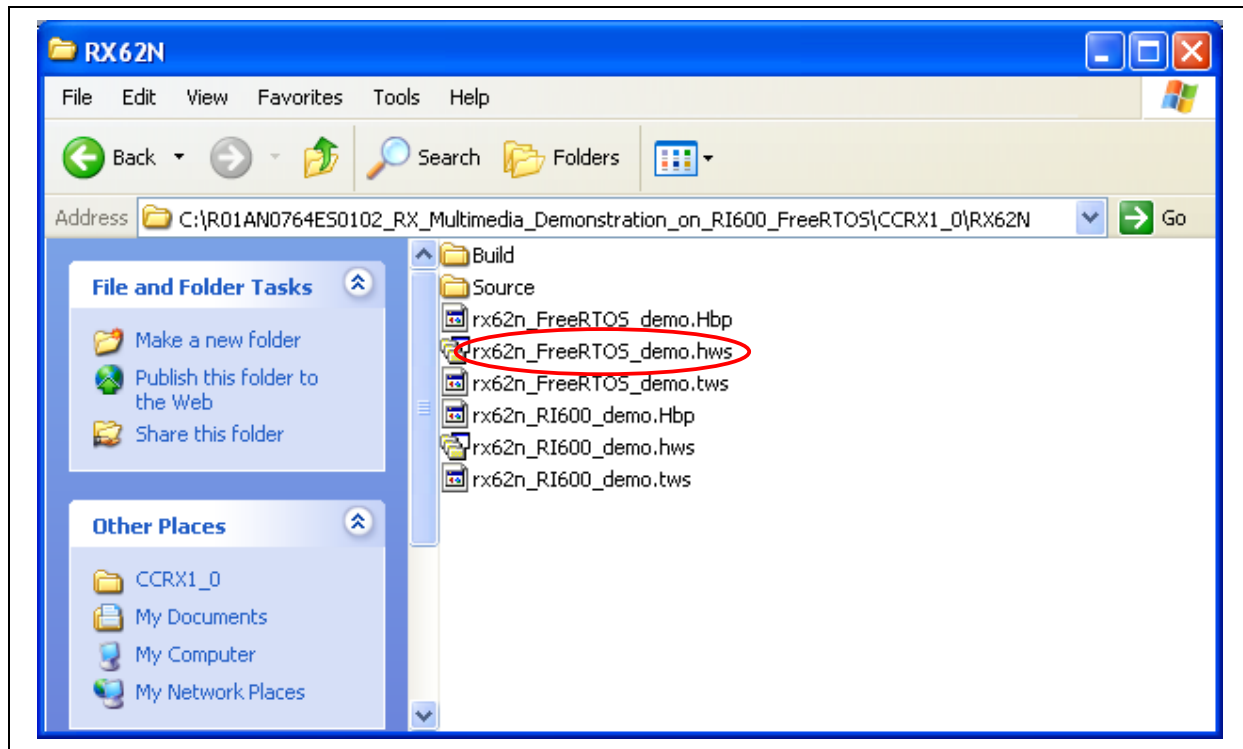
Open the rx62n_FreeRTOS_demo.hws Workspace file as shown below:

Select 'Yes' in the following or similar prompt:

Connect to the RX62N RSK with the following settings:
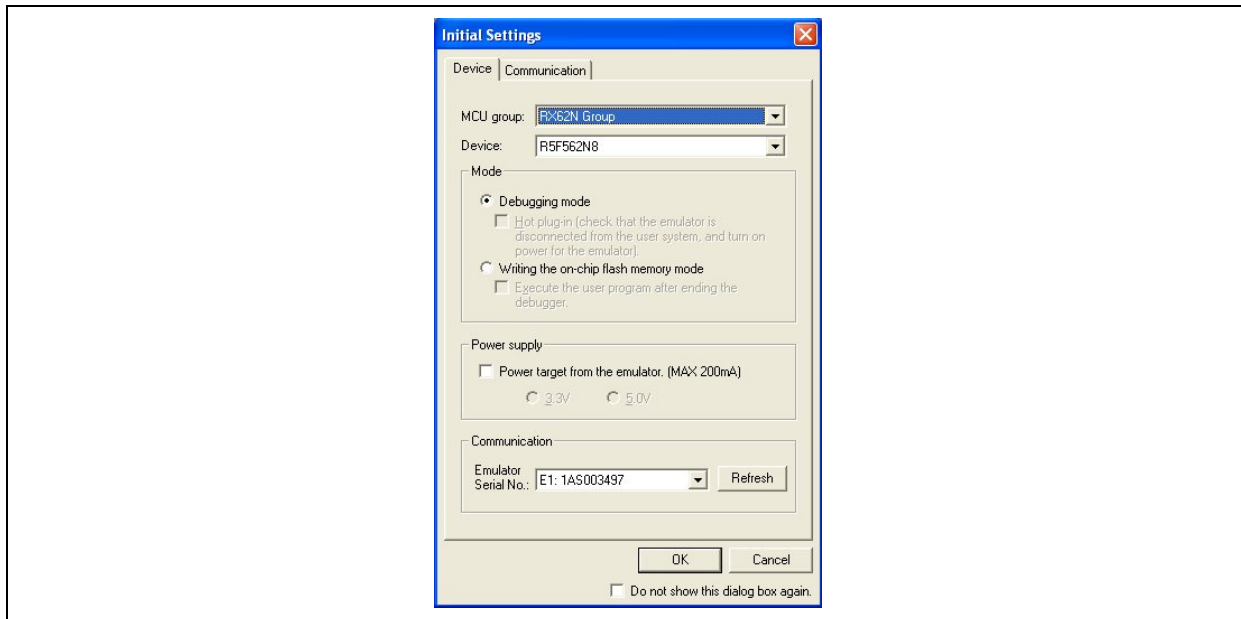
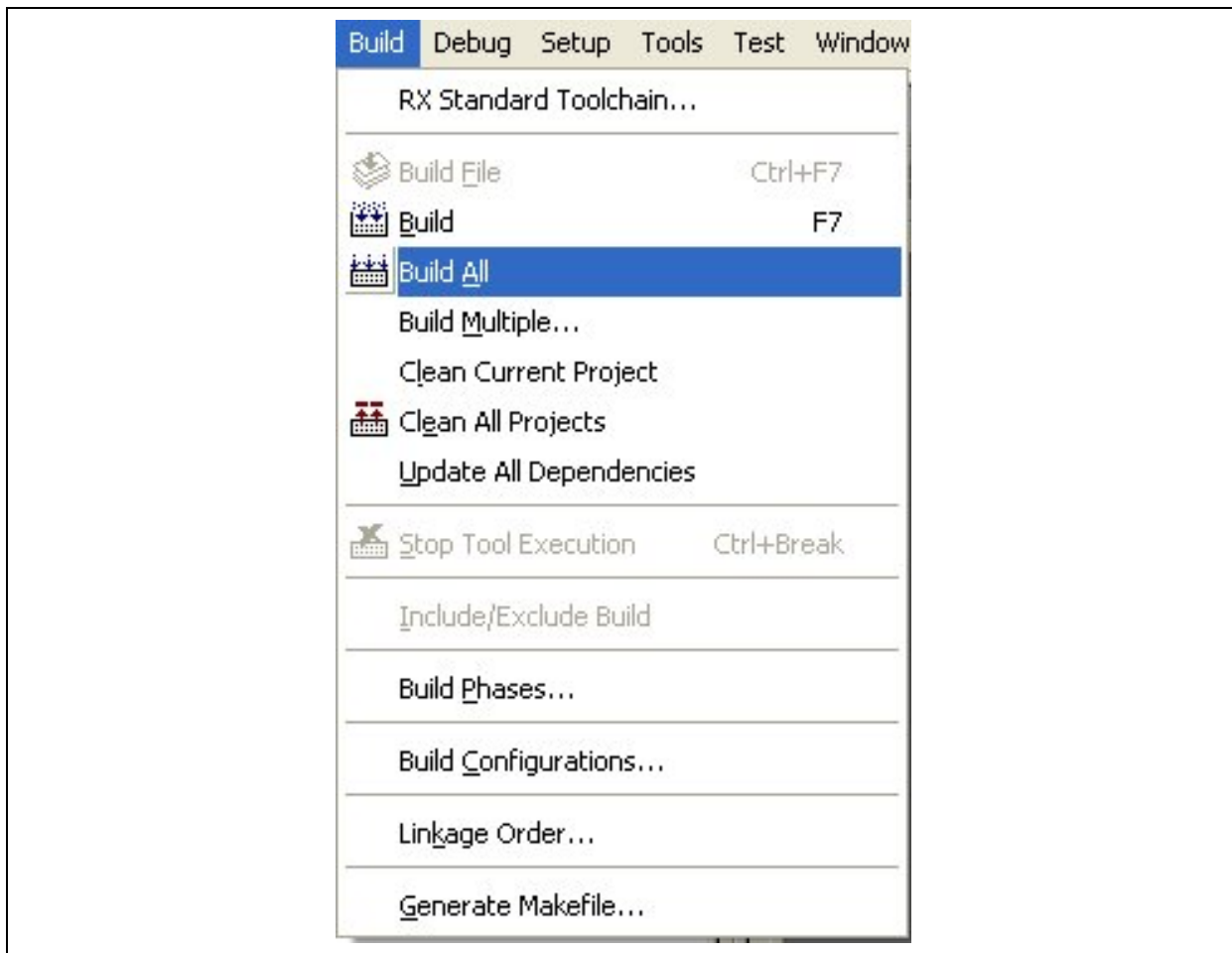In the next screen, configure as follows to complete the connection:
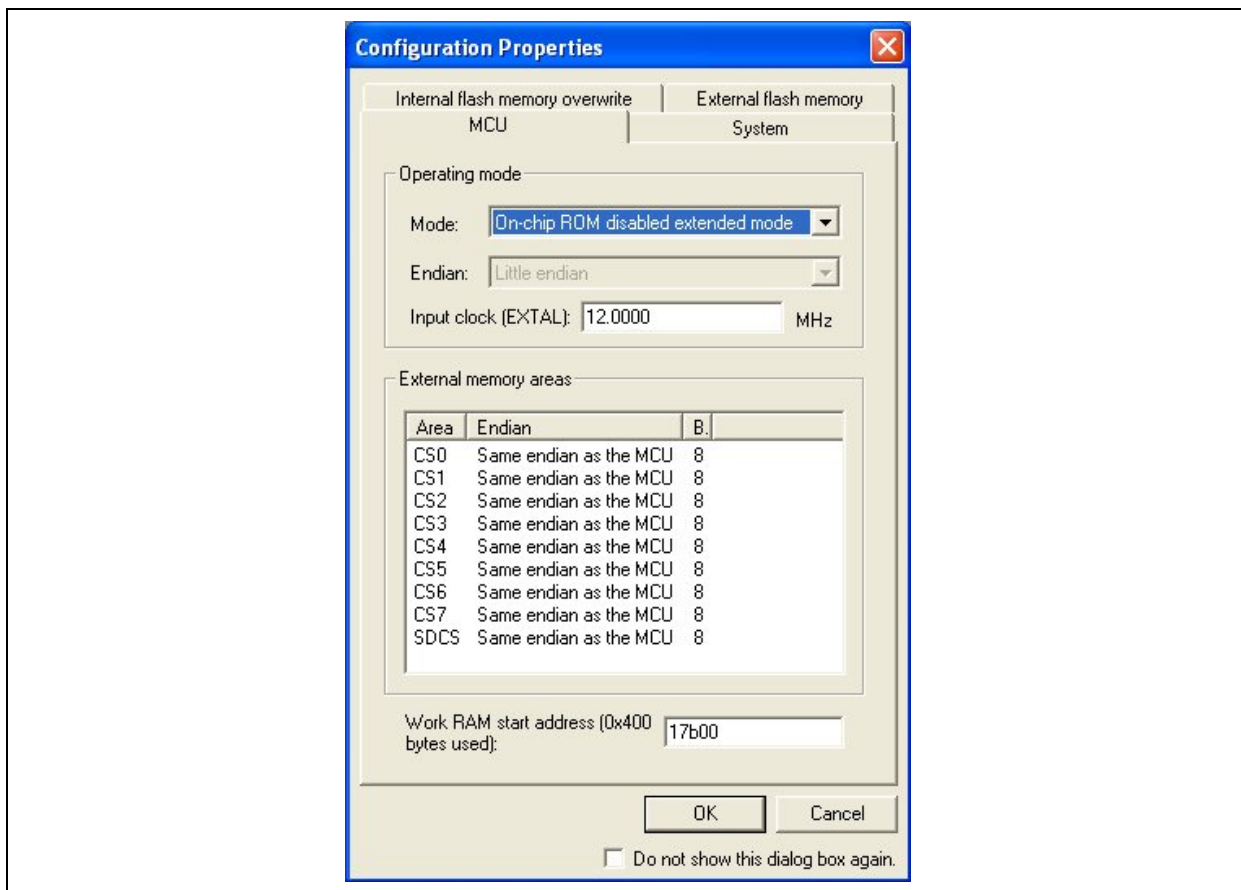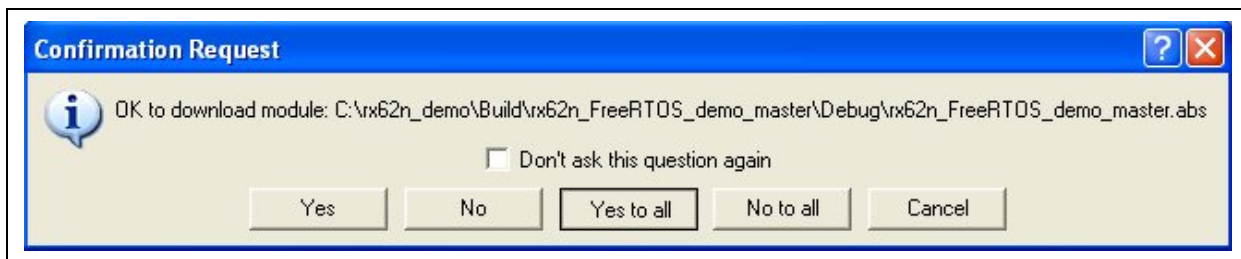
Note that the Work RAM start address should be: 17b00.

Ensure that the x62n_FreeRTOS_demo_master Project is selected as shown:

Goto Build→Build All as shown:

Click 'Yes to all' when prompted with the following window:

Press F5 or select Debug→Go to start program execution.

6.2 Compiler Settings

The compiler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -
include="$(WORKSPDIR)\Source\demo_src\master\hew_files","$(WORKSPDIR)\Source\common_src_usb\MSC2F
W\include","$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include","$(WORKSPDIR)\Source\common_sr
c_usb\MSC2FW\TFAT\lib","$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src","$(WORKSPDIR)\
Source\tcpip\t4_lib","$(WORKSPDIR)\Source\tcpip\driver","$(WORKSPDIR)\Source\ddlcd","$(WORKSPDIR)\Sourc
e\gui","$(WORKSPDIR)\Source\gui\lib","$(WORKSPDIR)\Source\touch","$(WORKSPDIR)\Source\jpeg","$(WORK
SPDIR)\Source\jpeg\lib","$(WORKSPDIR)\Source\rx62n_demo_header","$(WORKSPDIR)\Source\mp3_dec\lib","$(
WORKSPDIR)\Source\mp3_dec","$(WORKSPDIR)\Source\bench","$(WORKSPDIR)\Source\DES\include","$(WOR
KSPDIR)\Source\FreeRTOS","$(WORKSPDIR)\Source\FreeRTOS\Adaptor","$(WORKSPDIR)\Source\adpcm\lib","$
(WORKSPDIR)\Source\adpcm","$(WORKSPDIR)\Source\wave" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,__RX600__=1,_TCP,_UDP,USBC_SDRAM_USE_PP,__WGP16__,RX,MP3Float,MP3F_NO_SINGLE_W
RAPPER,__ADAPTOR_FREE_RTOS__,RX62N_MASTER -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -
debug -nostuff -speed -approxdiv -simple_float_conv -nologo

The compiler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(WORKSPDIR)\Source\demo_src\master\hew_files" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src" -
include="$(WORKSPDIR)\Source\tcpip\t4_lib" -include="$(WORKSPDIR)\Source\tcpip\driver" -
include="$(WORKSPDIR)\Source\ddlcd" -include="$(WORKSPDIR)\Source\gui" -
include="$(WORKSPDIR)\Source\gui\lib" -include="$(WORKSPDIR)\Source\touch" -
include="$(WORKSPDIR)\Source\jpeg" -include="$(WORKSPDIR)\Source\jpeg\lib" -
include="$(WORKSPDIR)\Source\rx62n_demo_header" -include="$(WORKSPDIR)\Source\mp3_dec\lib" -
include="$(WORKSPDIR)\Source\mp3_dec" -include="$(WORKSPDIR)\Source\bench" -
include="$(WORKSPDIR)\Source\DES\include" -include="$(WORKSPDIR)\Source\FreeRTOS" -
include="$(WORKSPDIR)\Source\FreeRTOS\Adaptor" -include="$(WORKSPDIR)\Source\adpcm\lib" -
include="$(WORKSPDIR)\Source\adpcm" -include="$(WORKSPDIR)\Source\wave" -
include="$(WORKSPDIR)\Source\ri600_files" -include="$(WORKSPDIR)\Build\rx62n_RI600_demo_master\Debug"
-
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,__RX600__=1,_TCP,_UDP,USBC_SDRAM_USE_PP,__WGP16__,RX,MP3Float,MP3F_NO_SINGLE_W
RAPPER,__ADAPTOR_FREE_RTOS__,RX62N_MASTER -output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -
debug -section=L=C -nostuff -speed -approxdiv -simple_float_conv -nologo

6.3 Assembler Settings

The assembler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

The assembler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

6.4   Linker Settings

The linker settings for Renesas RX Toolchain Version 1.0 are as follows:

-noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -nooptimize -
start=R_DTCtable,B_DTCtable,BDTC_TABLE,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF,SI,SURI_ST
ACK,B,R,R_2,R_1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_sc
hedule,R_rx62n,R_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B
_testdata,B_schedule,B_rx62n,B_hmsc,BRI_RAM,BRI_HEAP,MP3WORK_IN,BMP3F,MP32WAV,BRINGBUF/00,
BDD_RASTERS*,BJPEG*,BGUI_WORK*,READ_FILE,MAIN_TASK_RAM/08000000,P*,C*,D*,W*/0FFF80000,J
PEG/0FFFF0000,FIXEDVECT/0FFFFFFD0 -nologo -stack -total_size -
binary="$(WORKSPDIR)\Source\jpeg\title.jpg"(JPEG:4,_jpgeg_title) -
library="$(WORKSPDIR)\Source\gui\lib\libwgpRX_LE_16.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT2_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\jpeg\lib\RXjpegd.lib" -library="$(WORKSPDIR)\Source\fft\rfft512.lib" -
library="$(WORKSPDIR)\Source\bench\aes\lib\RXaes256little.lib" -
library="$(WORKSPDIR)\Source\DES\lib\des_rx_little_v100.lib" -
library="$(WORKSPDIR)\Source\adpcm\lib\s2_rx_little_v100.lib" -
output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -
form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

The linker settings for Renesas RX Toolchain Version 1.2 are as follows:

-noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -optimize=speed -
start=R_DTCtable,B_DTCtable,BDTC_TABLE,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF,B,R,R_2,R_
1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_schedule,R_rx62n,R
_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B_testdata,B_sched
ule,B_rx62n,B_hmsc,BRI_RAM,MP3WORK_IN,BMP3F,MP32WAV,BRINGBUF/00,BDD_RASTERS*,BJPEG*,BG
UI_WORK*,READ_FILE,MAIN_TASK_RAM/08000000,P*,C*,D*,W*/0FFF80000,JPEG/0FFFF0000,FIXEDVECT
/0FFFFFFD0 -nologo -stack -total_size -binary="$(WORKSPDIR)\Source\jpeg\title.jpg"(JPEG:4,_jpgeg_title) -
library="$(WORKSPDIR)\Source\gui\lib\libwgpRX_LE_16.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\gui\lib\MGT2_LIB_LE.lib" -
library="$(WORKSPDIR)\Source\jpeg\lib\RXjpegd.lib" -library="$(WORKSPDIR)\Source\fft\rfft512.lib" -
library="$(WORKSPDIR)\Source\DES\lib\des_rx_little_v100.lib" -
library="$(WORKSPDIR)\Source\adpcm\lib\s2_rx_little_v100.lib" -
output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -
form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" -exit

7. FreeRTOS™: Slave RSK

7.1 Running Master RSK
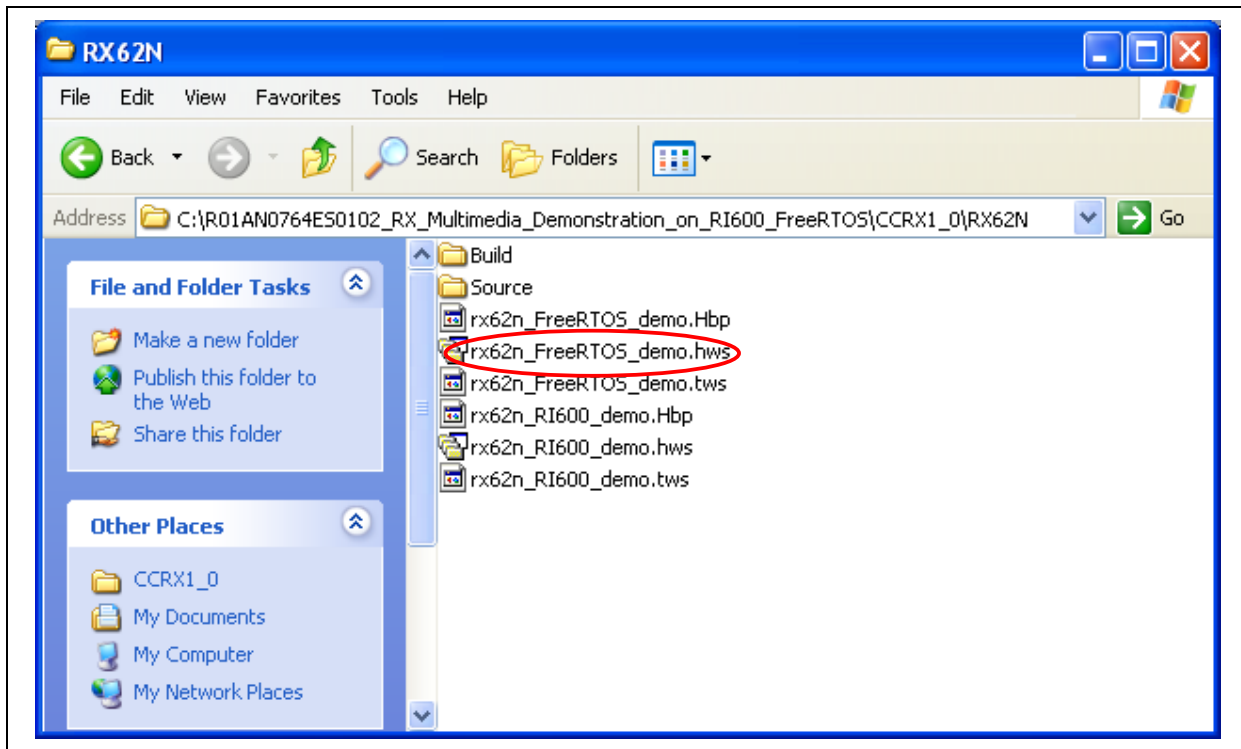
Open the rx62n_FreeRTOS_demo.hws Workspace file as shown below:

Select 'Yes' in the following or similar prompt:
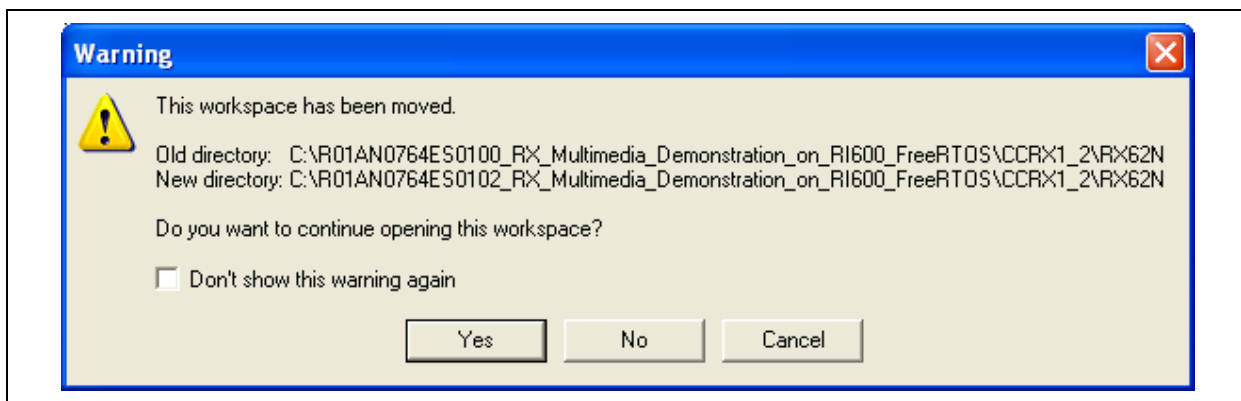
Connect to the RX62N RSK with the following settings:
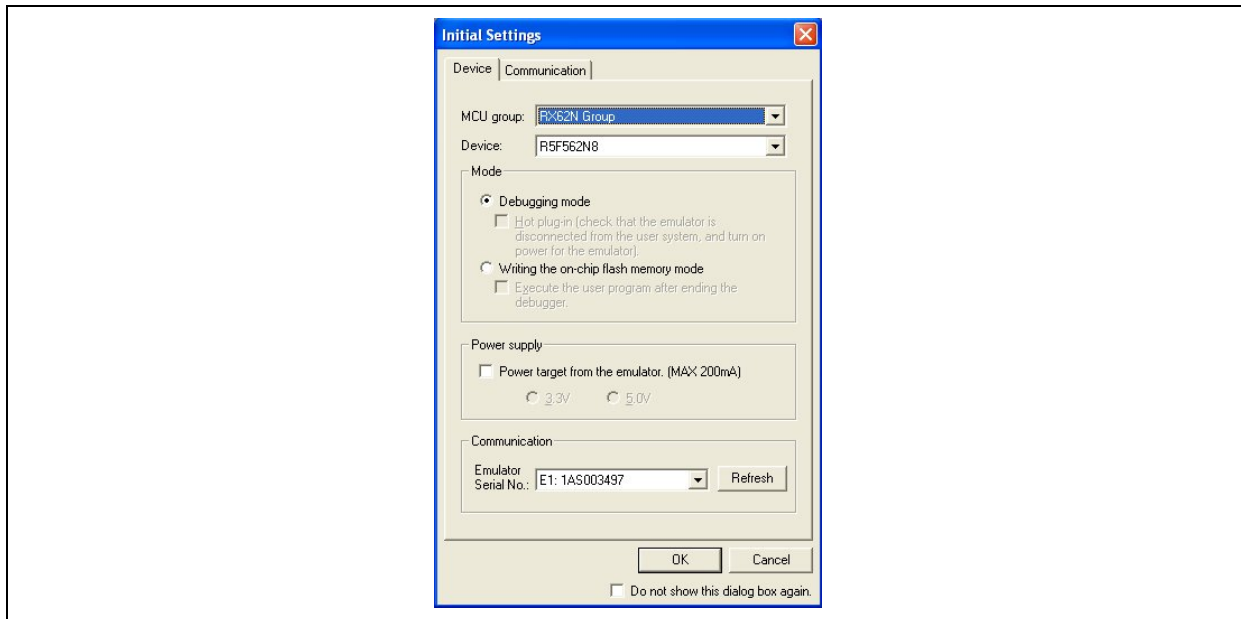
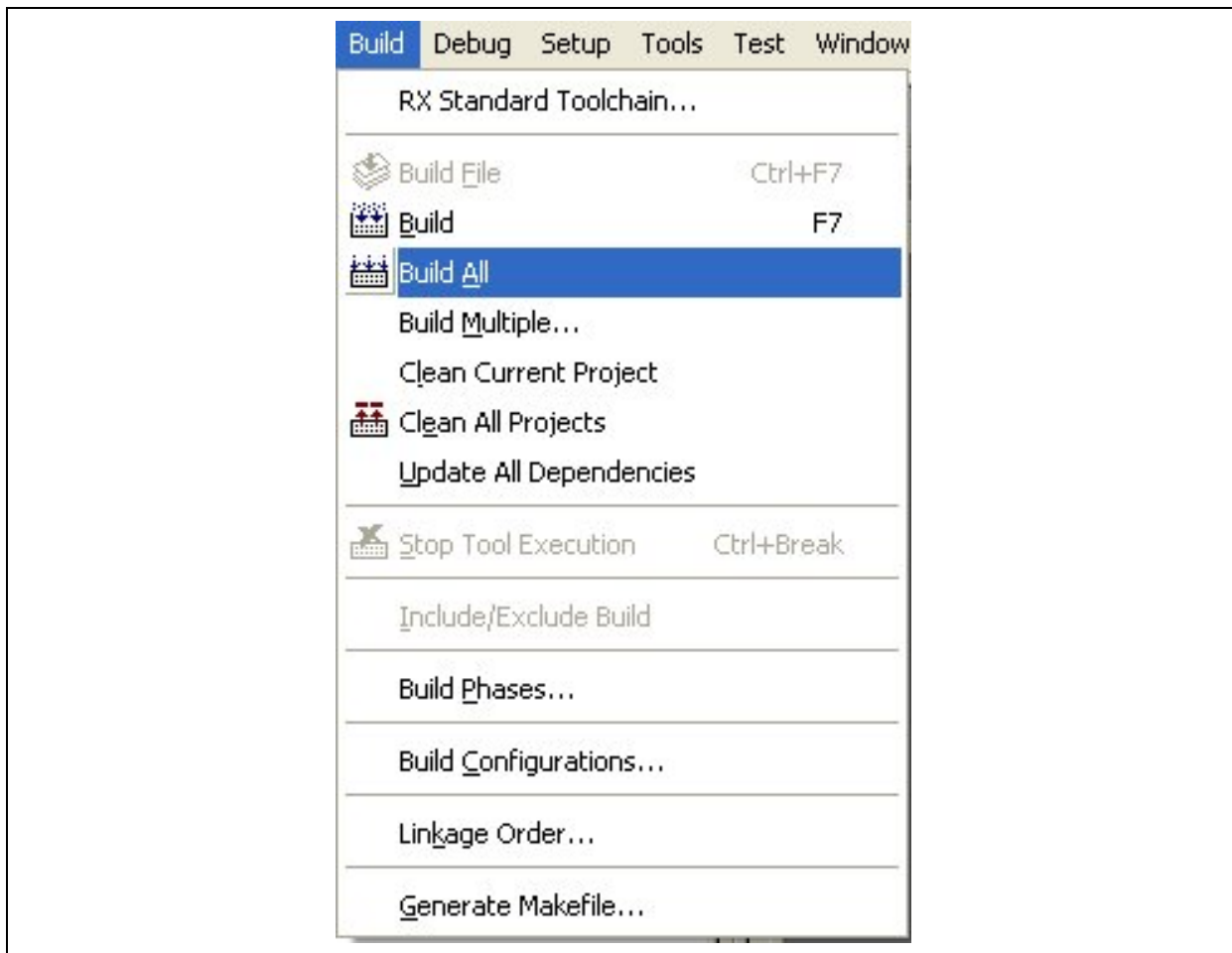In the next screen, configure as follows to complete the connection:
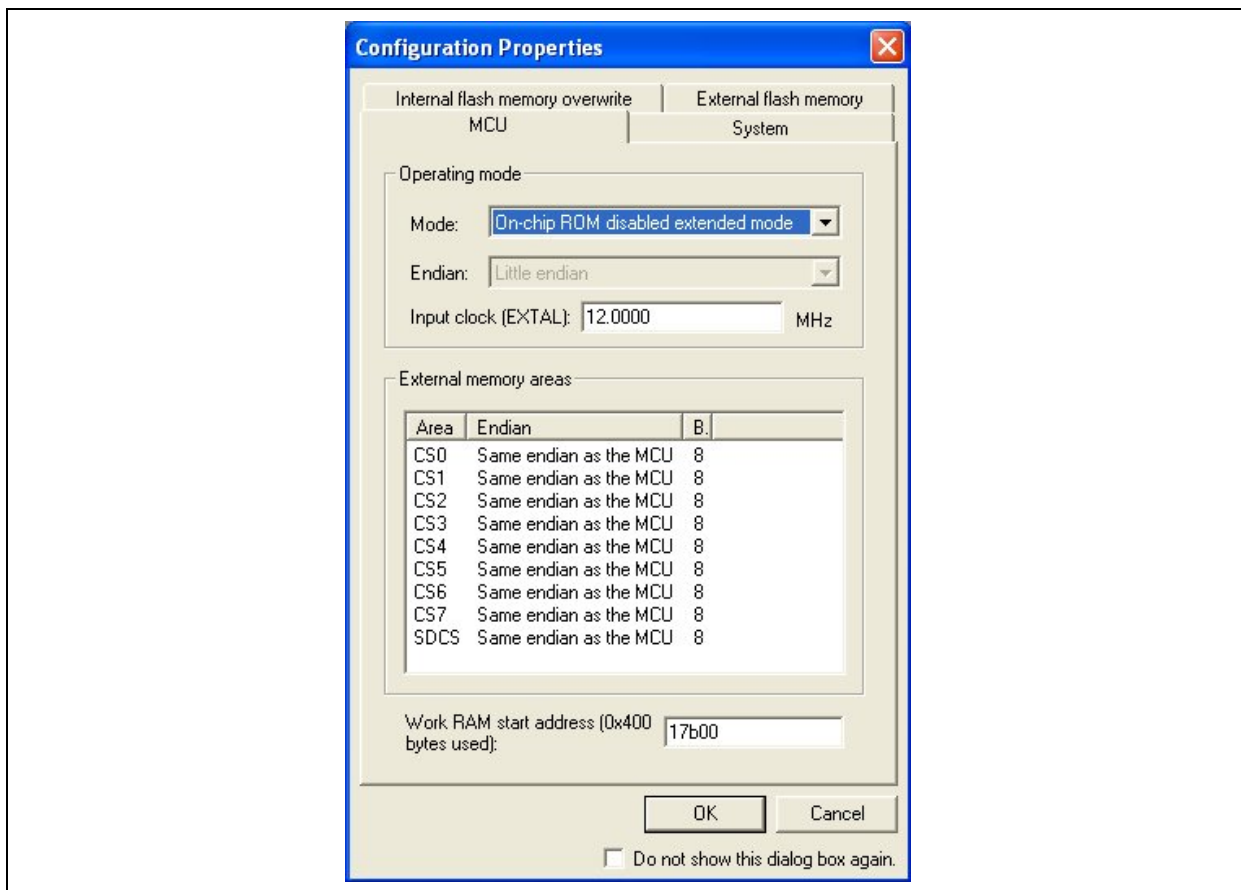
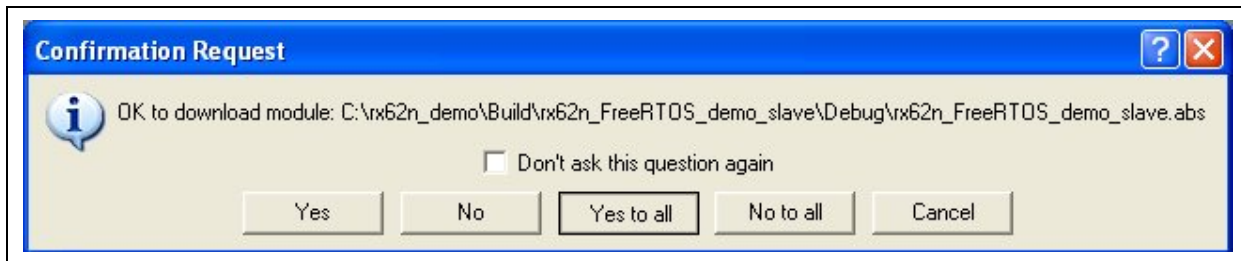Note that the Work RAM start address should be: 17b00.

Ensure that the x62n_FreeRTOS_demo_slave Project is selected as shown:

```
☐ ⚙ rx62n_FreeRTOS_demo
     ├── 📄 rx62n_FreeRTOS_demo_master
     └── ⊞ 📄 rx62n_FreeRTOS_demo_slave
```

Goto Build→Build All as shown:

Build	Debug	Setup	Tools	Test	Window

- RX Standard Toolchain...
- 📚 Build File   Ctrl+F7
- 📅 Build   F7
- 📅 **Build All**
- Build Multiple...
- Clean Current Project
- 📅 Clean All Projects
- Update All Dependencies
- ✖ Stop Tool Execution   Ctrl+Break
- Include/Exclude Build
- Build Phases...
- Build Configurations...
- Linkage Order...
- Generate Makefile...

Click 'Yes to all' when prompted with the following window:

Confirmation Request

ⓘ OK to download module: C:\rx62n_demo\Build\rx62n_FreeRTOS_demo_slave\Debug\rx62n_FreeRTOS_demo_slave.abs

☐ Don't ask this question again

Yes	No	Yes to all	No to all	Cancel

Press F5 or select Debug→Go to start program execution.

7.2   Compiler Settings

The compiler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -
include="$(WORKSPDIR)\Source\demo_src\slave\hew_files","$(WORKSPDIR)\Source\common_src_usb\MSC2FW\i
nclude","$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include","$(WORKSPDIR)\Source\common_src_u
sb\MSC2FW\TFAT\lib","$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src","$(WORKSPDIR)\Sou
rce\tcpip\driver","$(WORKSPDIR)\Source\tcpip\t4_lib","$(WORKSPDIR)\Source\rx62n_demo_header","$(WORKSP
DIR)\Source\FreeRTOS","$(WORKSPDIR)\Source\FreeRTOS\Adaptor" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,_TCP,_UDP,__RX600__,__ADAPTOR_FREE_RTOS__ -undefine=__RX600 -
output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -debug -nostuff -speed -nologo

The compiler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -include="$(WORKSPDIR)\Source\demo_src\slave\hew_files" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\USB2STDFW\include" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib" -
include="$(WORKSPDIR)\Source\common_src_usb\MSC2FW\TFAT\lib_src" -
include="$(WORKSPDIR)\Source\tcpip\driver" -include="$(WORKSPDIR)\Source\tcpip\t4_lib" -
include="$(WORKSPDIR)\Source\rx62n_demo_header" -include="$(WORKSPDIR)\Source\FreeRTOS" -
include="$(WORKSPDIR)\Source\FreeRTOS\Adaptor" -
include="$(WORKSPDIR)\Build\rx62n_RI600_demo_slave\Debug" -include="$(WORKSPDIR)\Source\ri600_files" -
include="$(WORKSPDIR)\Source\DDLCD" -
define=USB2_FUNCSEL_PP=USBC_HOST_PP,USBC_FW_PP=USBC_FW_OS_PP,USBC_TFAT_USE_PP=1,_T4
_ETHER,_TCP,_UDP,__RX600__,__ADAPTOR_FREE_RTOS__ -undefine=__RX600 -
output=obj="$(CONFIGDIR)\$(FILELEAF).obj" -debug -section=L=C -nostuff -speed -nologo

7.3   Assembler Settings

The assembler settings for Renesas RX Toolchain Version 1.0 are as follows:

-cpu=rx600 -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" -nologo

The assembler settings for Renesas RX Toolchain Version 1.2 are as follows:

-cpu=rx600 -debug -output="$(CONFIGDIR)\$(FILELEAF).obj" –nologo

7.4   Linker Settings

The linker settings for Renesas RX Toolchain Version 1.0 are as follows:

-noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -nooptimize -
start=R_DTCtable,B_DTCtable/00,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF/01000,SI,SURI_STACK,
B,R,R_2,R_1,R_usblib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_schedule
,R_rx62n,R_hmsc,B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B_testda
ta,B_schedule,B_rx62n,B_hmsc,BRI_RAM,BRI_HEAP/03000,READ_FILE,MAIN_TASK_RAM/08000000,INTERR
UPT_VECTOR,P*,C*,D*,W*/0FFF80000,FIXEDVECT/0FFFFFFD0 -nologo -
output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -input="$(CONFIGDIR)\$(PROJECTNAME).abs" -
form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" –exit

The linker settings for Renesas RX Toolchain Version 1.2 are as follows:

-noprelink -
rom=D=R,D_1=R_1,D_2=R_2,D_usblib=R_usblib,D_hcd=R_hcd,D_pcd=R_pcd,D_descriptor=R_descriptor,D_hub=
R_hub,D_vndr=R_vndr,D_eletest=R_eletest,D_smpl=R_smpl,D_Dummy=R_Dummy,D_testdata=R_testdata,D_DTCt
able=R_DTCtable,D_rx62n=R_rx62n,D_hmsc=R_hmsc -nomessage -list="$(CONFIGDIR)\$(PROJECTNAME).map"
-show=symbol,reference,xreference,total_size,vector -nooptimize -
start=R_DTCtable,B_DTCtable/00,B_RX_DESC,B_TX_DESC,B_RX_BUFF,B_TX_BUFF/01000,B,R,R_2,R_1,R_us
blib,R_hcd,R_pcd,R_descriptor,R_hub,R_vndr,R_eletest,R_smpl,R_Dummy,R_testdata,R_schedule,R_rx62n,R_hmsc,
B_2,B_1,B_usblib,B_hcd,B_pcd,B_descriptor,B_hub,B_vndr,B_eletest,B_smpl,B_Dummy,B_testdata,B_schedule,B_r
x62n,B_hmsc,BRI_RAM/03000,READ_FILE,MAIN_TASK_RAM/08000000,P*,C*,D*,W*/0FFF80000,FIXEDVEC
T/0FFFFFFD0 -nologo -output="$(CONFIGDIR)\$(PROJECTNAME).abs" -end -
input="$(CONFIGDIR)\$(PROJECTNAME).abs" -form=stype -output="$(CONFIGDIR)\$(PROJECTNAME).mot" -
exit

Website and Support

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Revision Record

Rev.	Date	Page	Summary
		Description	
1.00	Jul.19.11	—	First edition issued
1.01	Jun. 05. 12	—	Changed the code to support Renesas RX Compiler V1.02
1.02	Sept. 05.12	1	Include MP3 in table with exception to find local Renesas Representative.
1.02	Sept. 05.12	3	Updated HEW and CCRX compiler versions
1.02	Sept. 05.12	11-13	Added Directory structure and libraries to be added
1.02	Sept. 05.12	26,30	Removed "-patch=rx610"
1.02	Sept. 05.12	—	Updated General Precaution and Notice

General Precautions in the Handling of MPU/MCU Products

The following usage notes are applicable to all MPU/MCU products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Handling of Unused Pins

    Handle unused pins in accord with the directions given under Handling of Unused Pins in the manual.

    — The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible. Unused pins should be handled as described under Handling of Unused Pins in the manual.

2. Processing at Power-on

    The state of the product is undefined at the moment when power is supplied.

    — The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the moment when power is supplied.
    In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the moment when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the moment when power is supplied until the power reaches the level at which resetting has been specified.

3. Prohibition of Access to Reserved Addresses

    Access to reserved addresses is prohibited.

    — The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

4. Clock Signals

    After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has stabilized.

    — When the clock signal is generated with an external resonator (or from an external oscillator) during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Moreover, when switching to a clock signal produced with an external resonator (or by an external oscillator) while program execution is in progress, wait until the target clock signal is stable.

5. Differences between Products

    Before changing from one product to another, i.e. to a product with a different part number, confirm that the change will not lead to problems.

    — The characteristics of an MPU or MCU in the same group but having a different part number may differ in terms of the internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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