Debug and Example

Multicore Applications

Agenda

1. Debug on CCSv5
   a. New Project
   b. Build Configurations
   c. Target Configuration
2. PDK Example
   a. Navigator for Inter-core Communication

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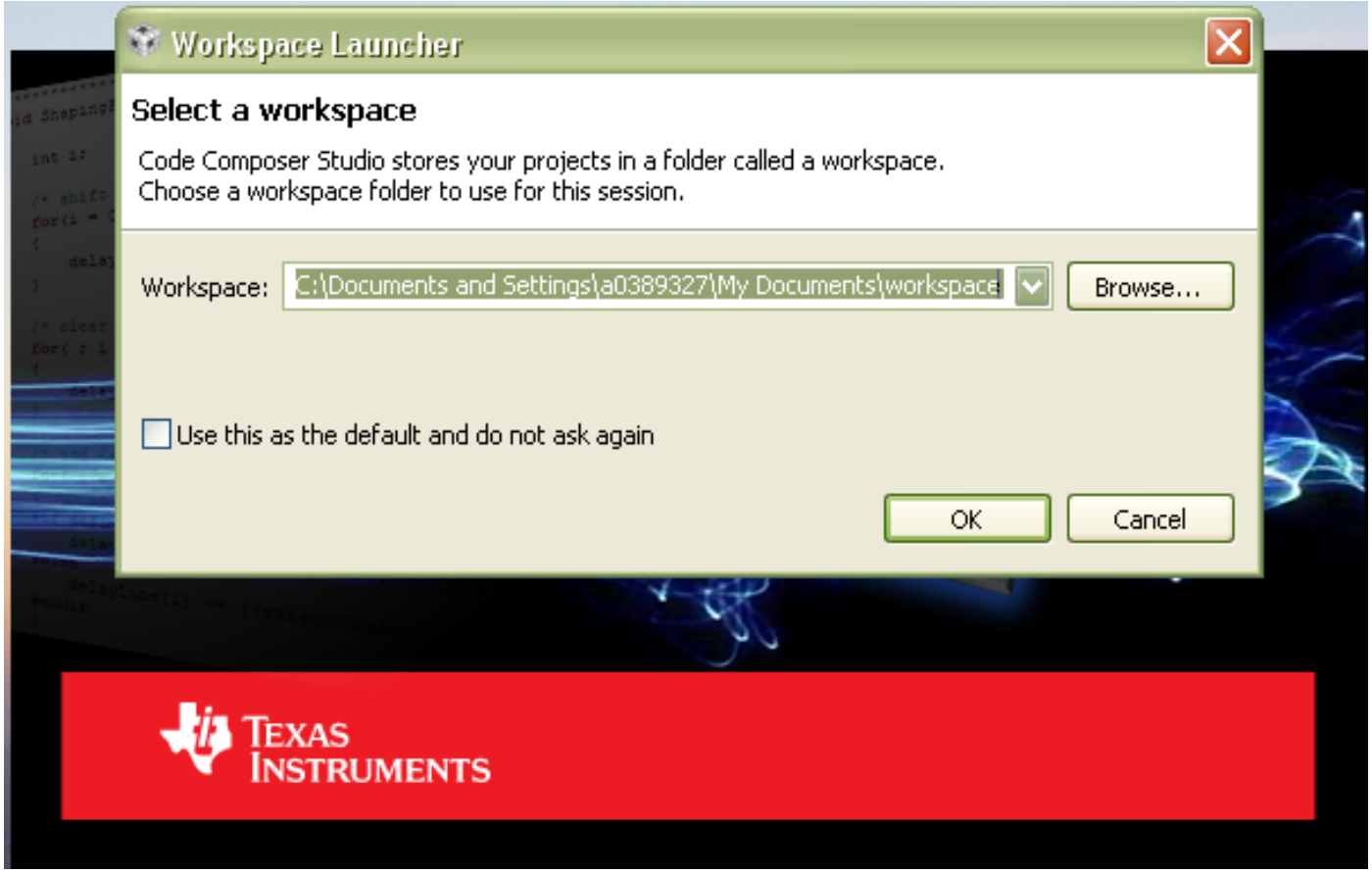
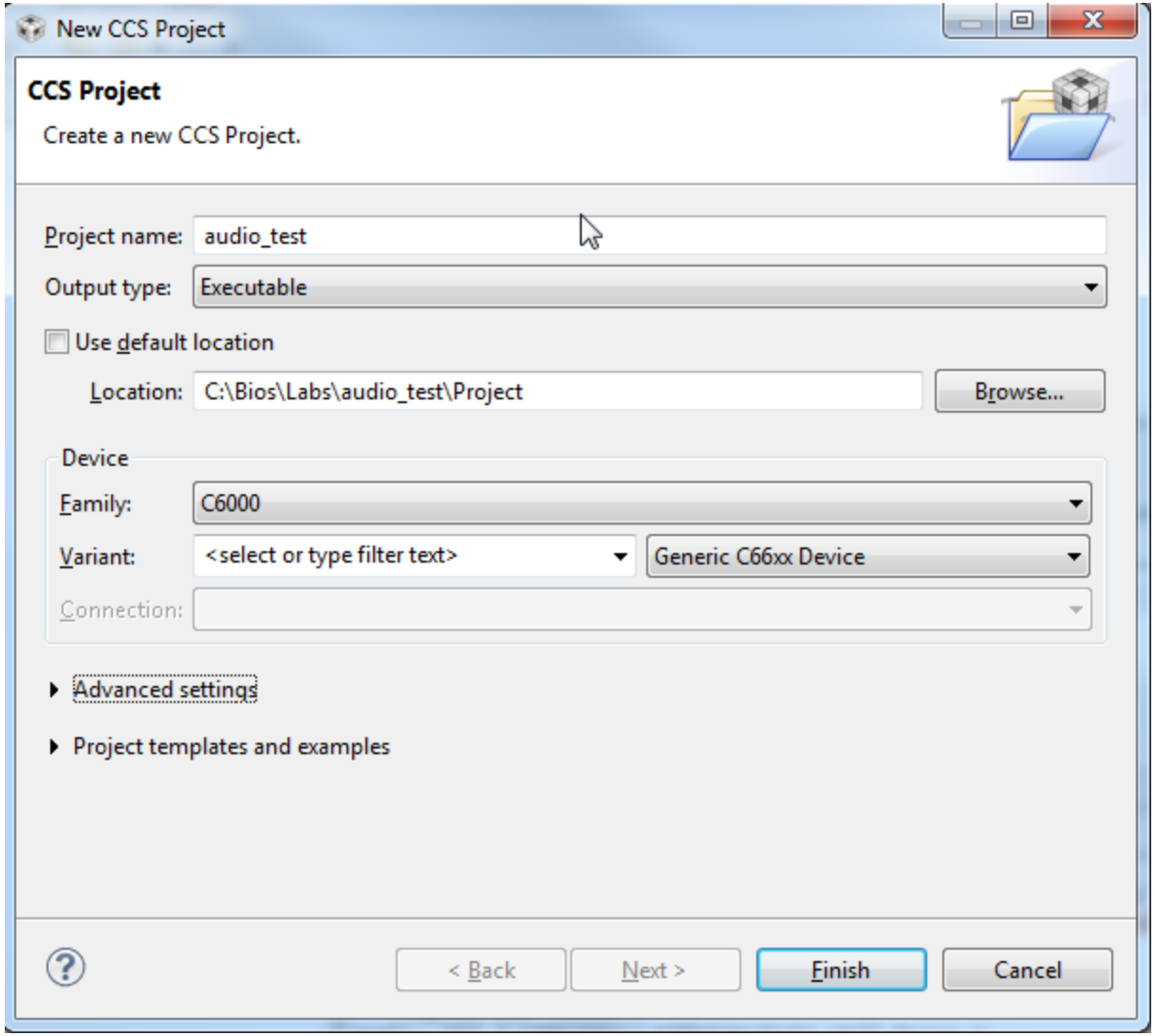
Open Workspace

Launch CCS and select a workspace folder



Creating a New Project (1)

File → New → CCS Project



Creating a New Project (2)

New CCS Project

CCS Project

Create a new CCS Project.

Project name: audio_test

Output type: Executable

Use default location

Location: C:\Bios\Labs\audio_test\Project Browse...

Device

Family: C6000

Variant: <select or type filter text> Generic C66xx Device

Connection:

Advanced settings

Device endianness: little

Compiler version: TI v7.3.0 More...

Output format: eabi (ELF)

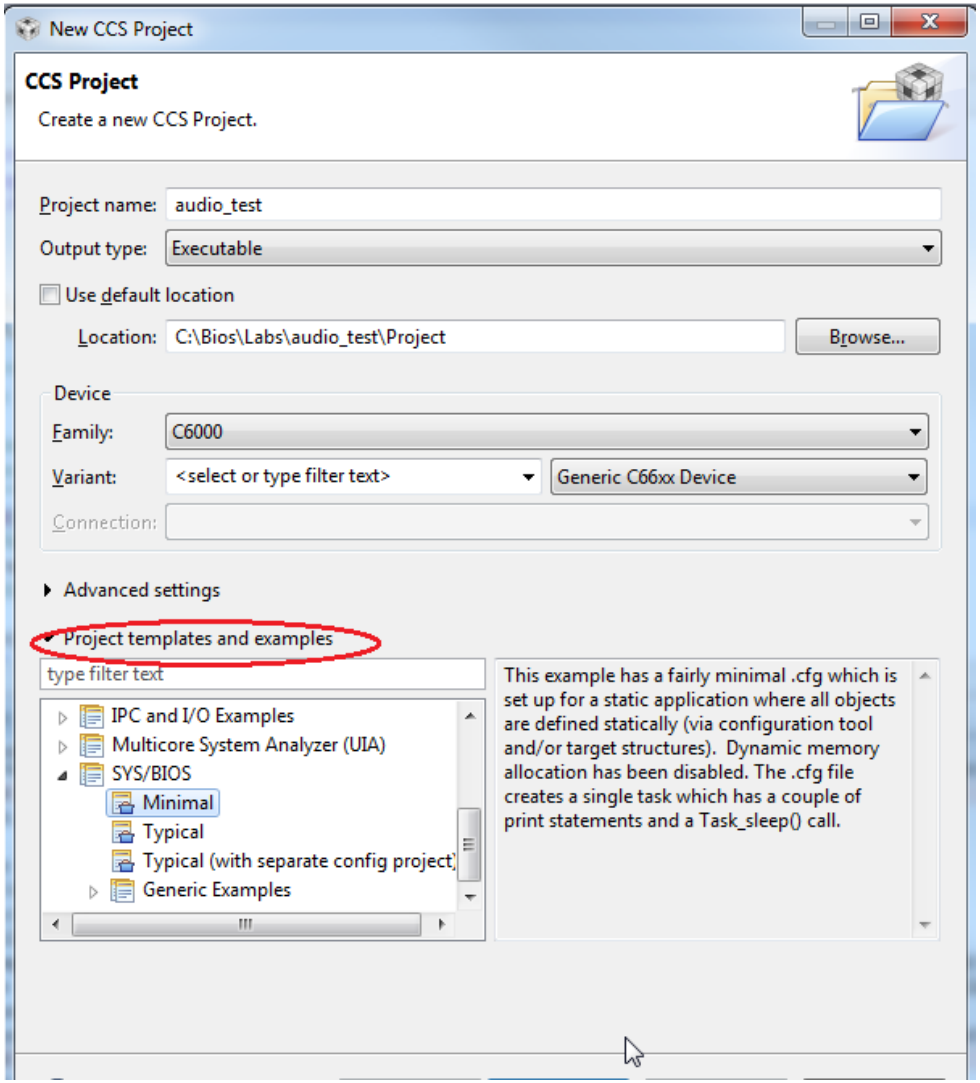
Linker command file: Browse...

Runtime support library: <automatic> Browse...

Project templates and examples

< Back Next > Finish Cancel

Creating a New Project (3)



- Not using SYS/BIOS?
  - Choose "Empty Project"
- Using SYS/BIOS?
  - Choose "Minimal" under SYS/BIOS

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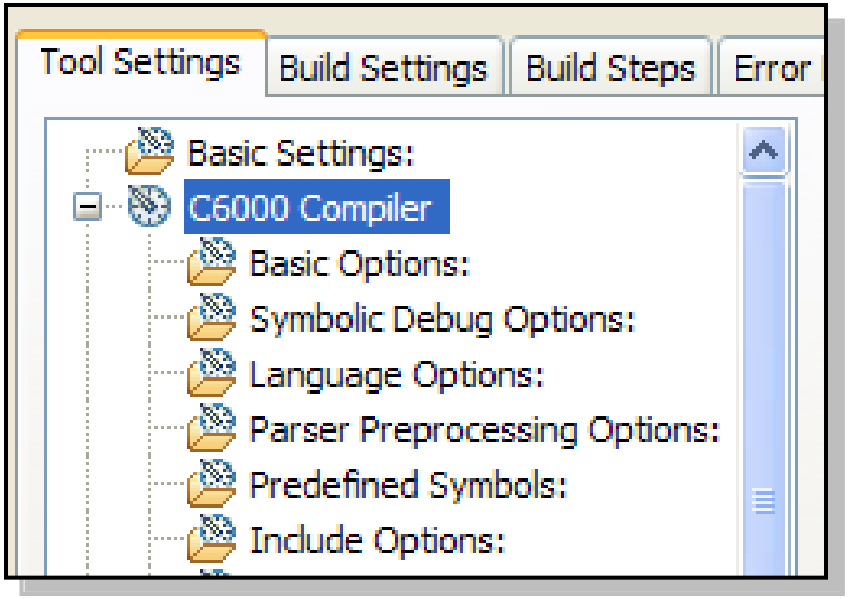
Build Configurations

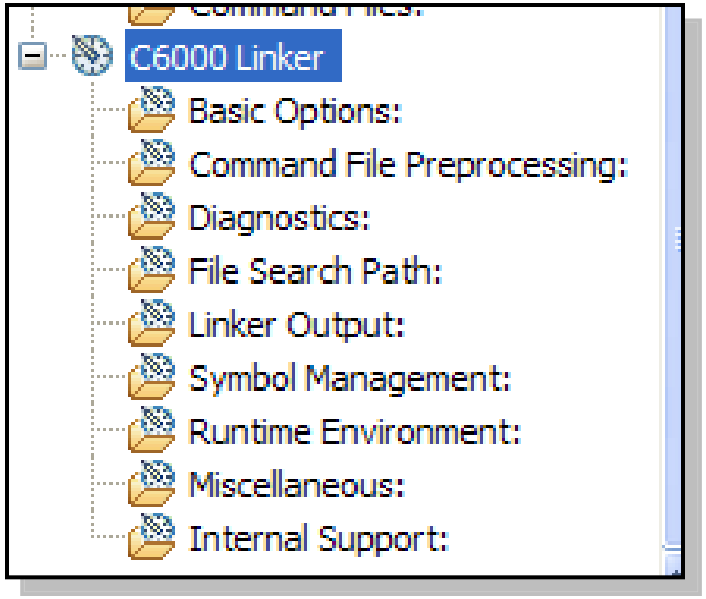
- *Build Configuration* – a set of build options for the compiler and linker (e.g. optimization levels, include DIRs, debug symbols, etc.)

- User can modify compiler/linker options via "Build Properties":

Compiler



Linker



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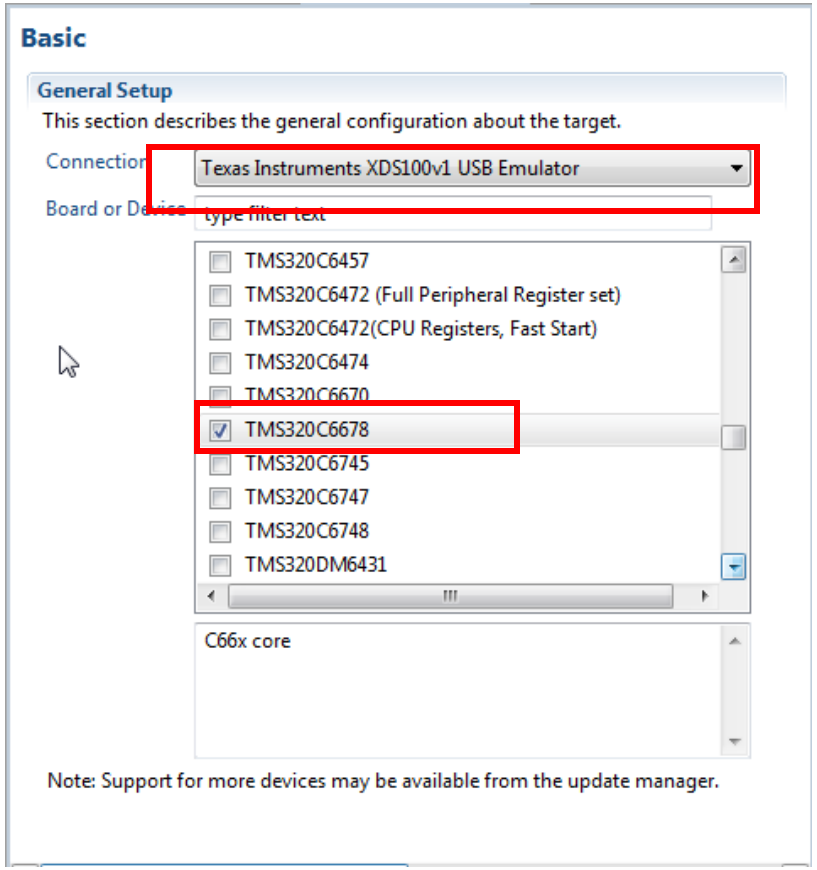
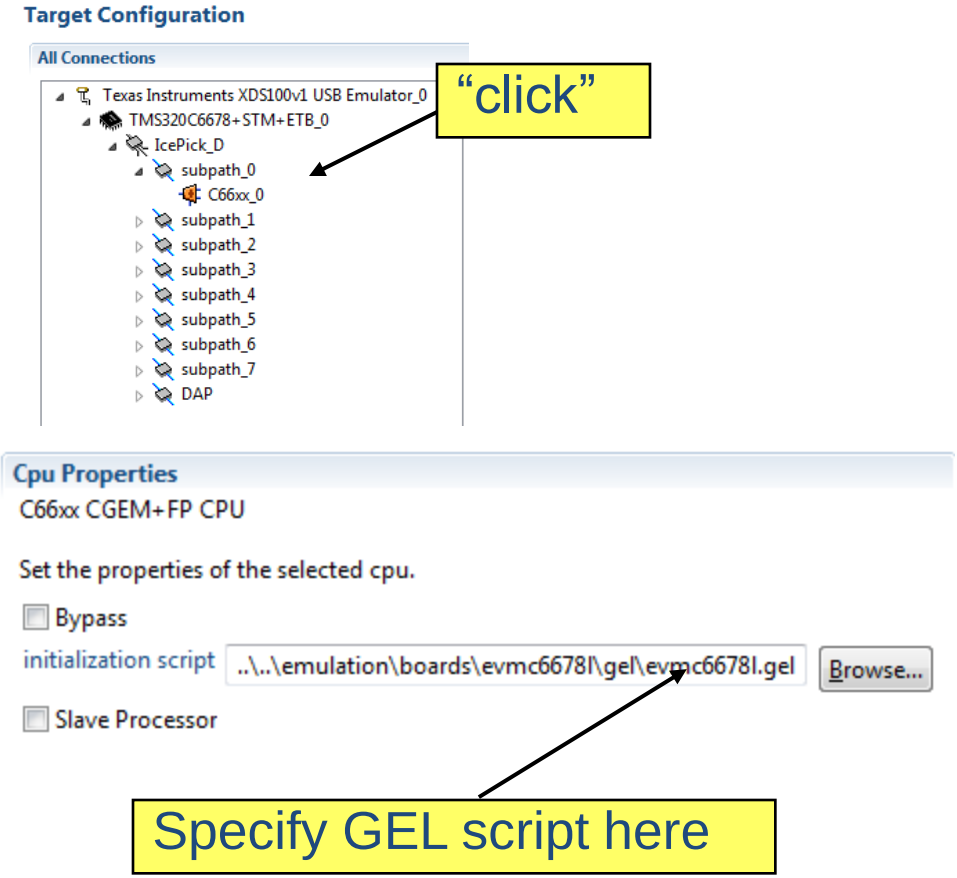
Creating a New Target Config File (.ccxml)

- *Target Configuration* – defines your "target" – i.e. emulator/device used, GEL scripts (replaces the old CCS Setup)
- Use on a per-project basis (add to project or create User Defined)



Advanced Tab



Specify GEL script here

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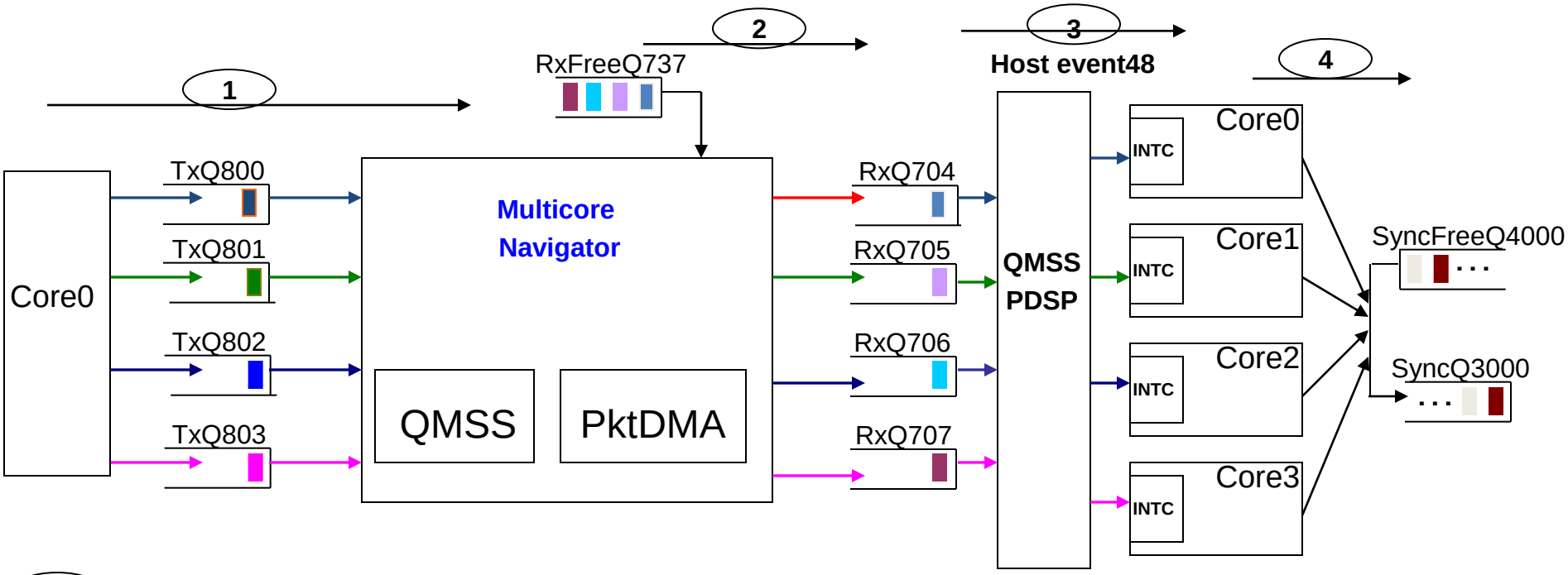
Data Flow



1 Core0 push descriptor into TxQ800/801/802/803 in turn. Navigator pop the descriptor from TxQ and transmit data.

2 After data transmission completed, the received descriptor is pushed to RxQ704/705/706/707 in turn.

3 As Que704/705/706/707 are accumulator queues, they are programmed to generate the host interrupt event_48 to core0/1/2/3 respectively. And the host event is mapped to the ISR vectID_10.

4 In the ISR service function, each core pop descriptor from sync free queue4000, and push it to sync queue3000 to generate sync signal to other cores.

5 Each core wait for other core's sync signal through check the sync queue3000 entry count.

To Run

- Little endian
- Import CCS project from PDK example located at C:\Program Files\Texas Instruments\pdk_C6678_1_0_0_16\packages\ti\drv\exampleProjects\qmInfraMCExampleProject
- Build project
- Specify emulation configuration
  - New target configuration
  - Select connection: Blackhawk XDS560v2-USB Mezzanine Emulator
  - Select device: TMS320C6678
  - Add evmc6678l.gel file for each core: InstallDir\ccsv5\ccs_base\emulation\boards\evmc6678l
- Launch target configuration with core0/1/2/3
- Group core0/1/2/3, and connect target
- Load program and run

For More Information

- CCS Download
- For more example, install MCSDK and refer to the below page on how to use MCSDK
  - MCSDK Start guide
  - MCSDK User guide

- EVM Support link
  - EVM6678 Order
  - EVM6657 Order
  - EVM667x Materials Download
  - EVM665x Materials Download