



Demonstrating the CC-Link IE Field Basic Master and Slave Reference Design with Processor SDK RTOS

TI Design: <http://www.ti.com/tool/tidep-0089>

CC-Link IE Field Basic Master and Slave Reference Design

(ACTIVE) TIDEP-0089

Description & Features

Technical Documents

Support & Training

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Key Document

CC-Link IE Field Basic Master and Slave Reference Design for Sitara™ AM335x (PDF 2957 KB)
31 Jul 2017 129 views

View All Technical Documents (5)

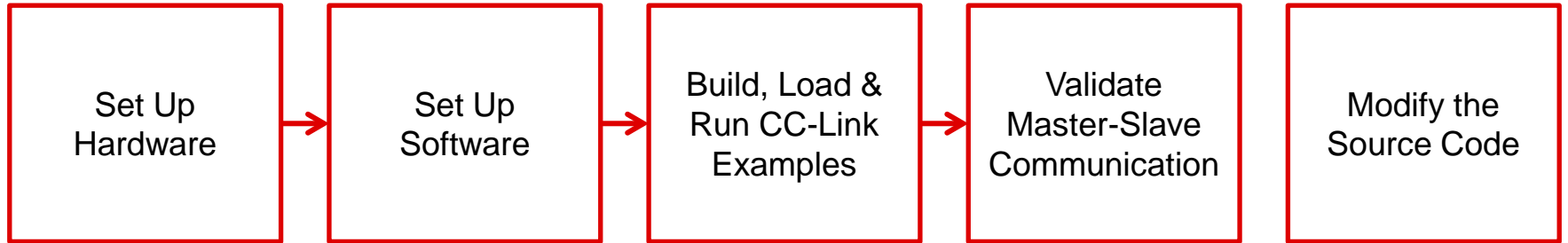
Description

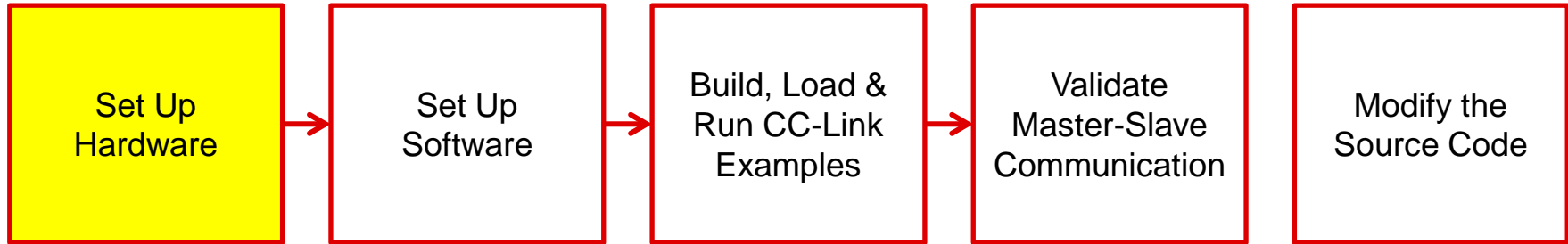
This reference design details a CCLink IE Field Basic implementation operating on the Sitara™ AM335x processor, with both Processor SDK RTOS and Processor SDK Linux. For RTOS, the design uses the Network Development Kit (NDK component within Processor SDK) transport



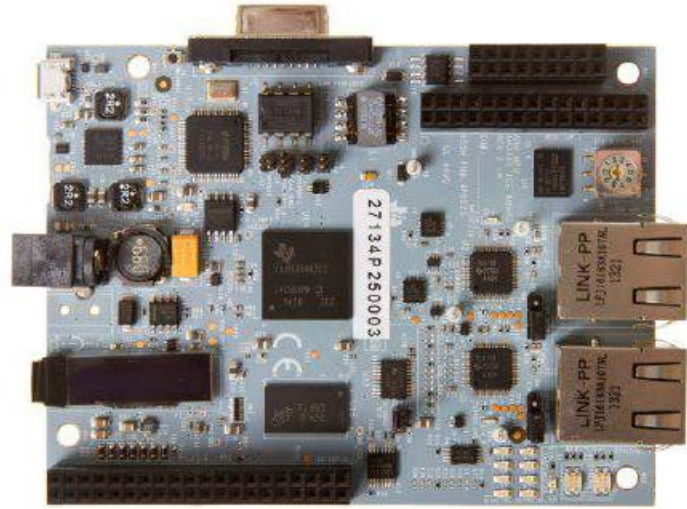
TIDEP-0089 CC-Link IE Field Basic Master and Slave Reference Design Board Image

Device	EVM	IEF Basic on EMAC (CPSW)		IEF Basic on PRU-ICSS	
		Linux	RTOS	Linux	RTOS
AM572x	AM572x GP EVM	✓	✓		
	AM572x IDK	✓	✓	✓	✓
AM571x	AM571x IDK	✓	✓	✓	✓
AM437x	AM437x GP EVM	✓	✓		
	AM437x SK	✓	✓		
	AM437x IDK	✓	✓	✓	✓
AM335x	AM335x GP EVM	✓	✓		
	AM335x BeagleBone Black	✓	✓		
	AM335x SK	✓	✓		
	AM335x ICE	✓	✓	✓	✓
K2G	K2G GP EVM	✓	✓		
	K2G ICE EVM	✓	✓	✓	✓

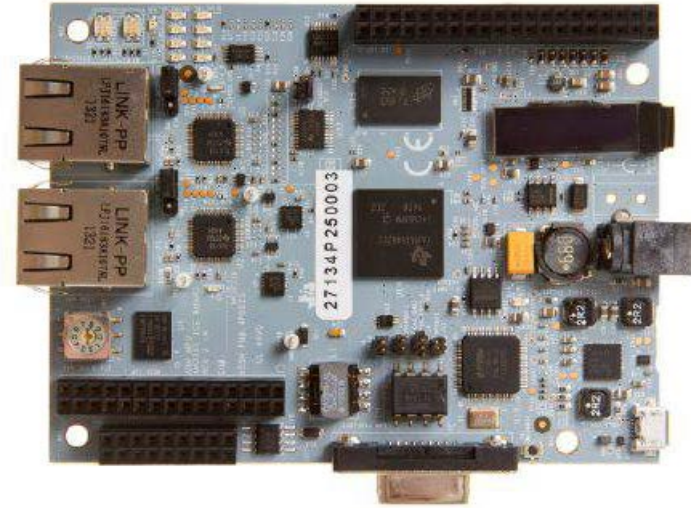




Hardware setup



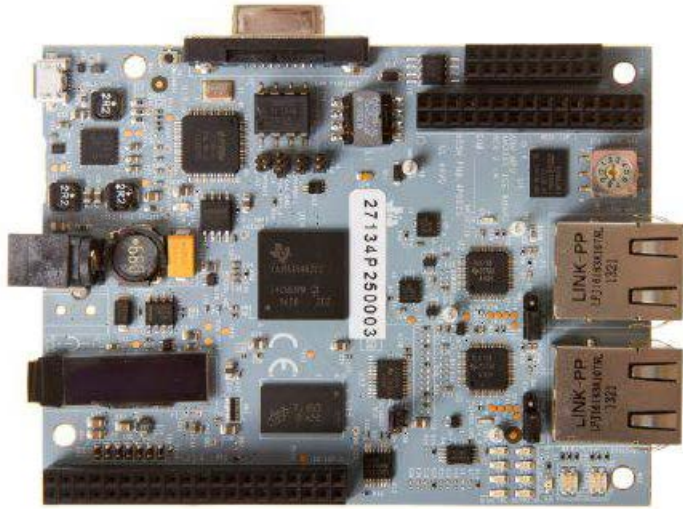
AM3359 ICE



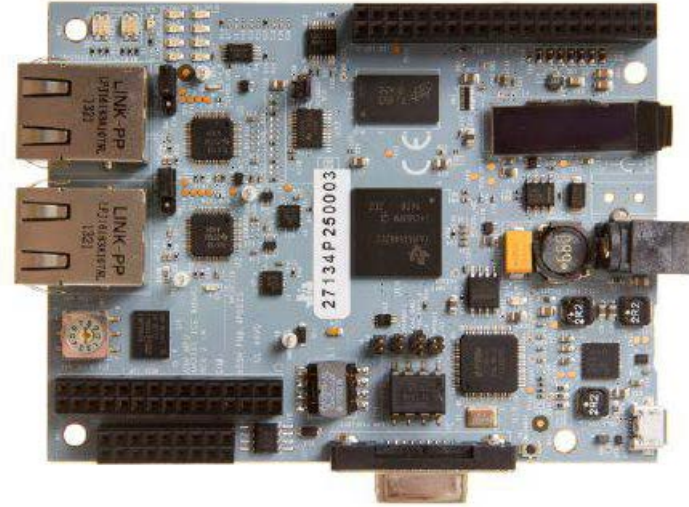
AM3359 ICE



Hardware setup

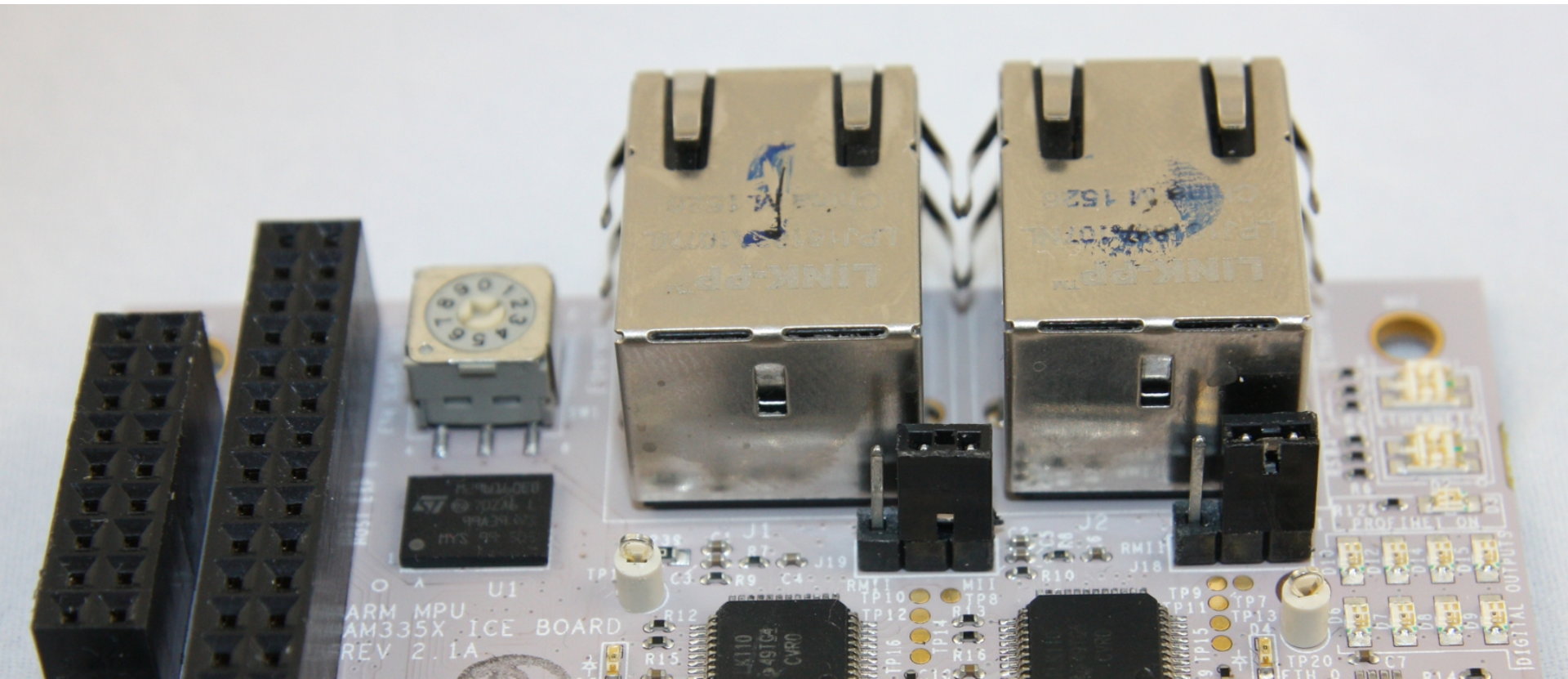


AM3359 ICE



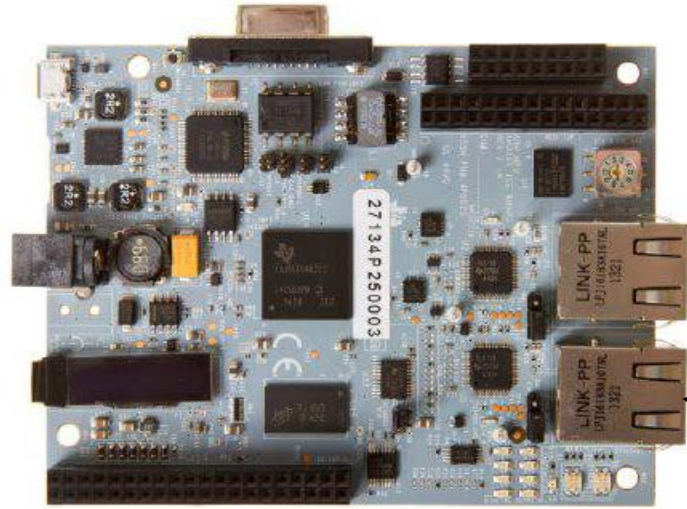
AM3359 ICE

Hardware setup

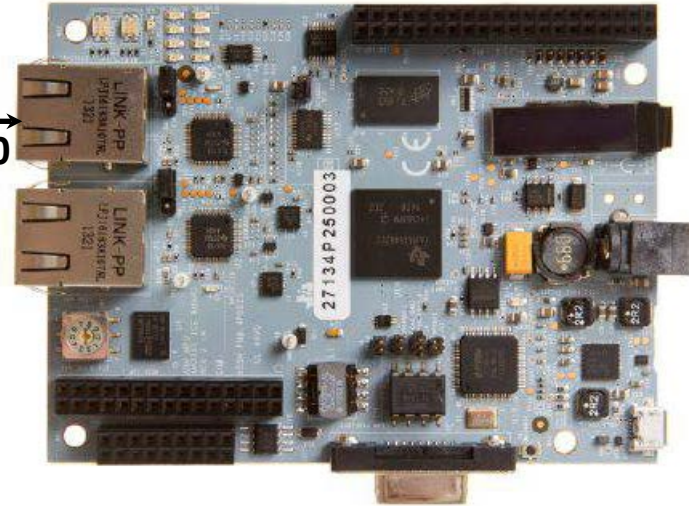
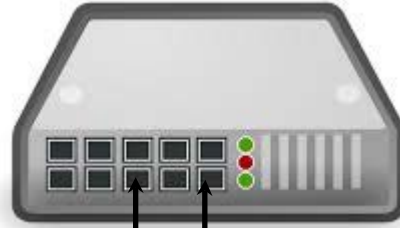




Hardware setup



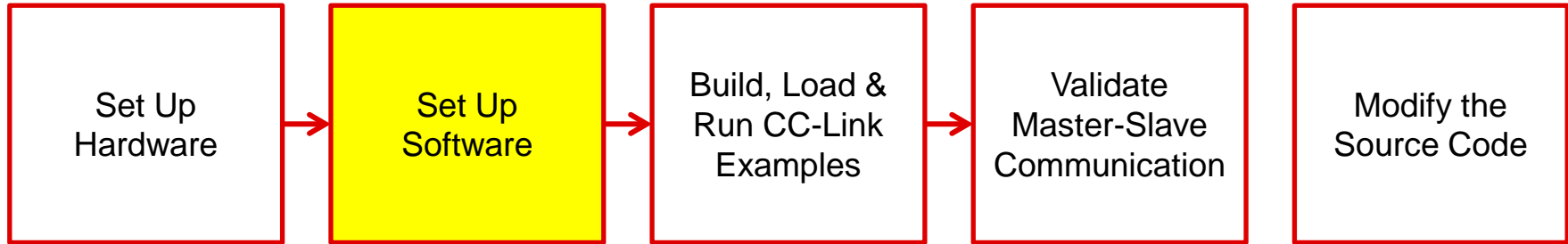
AM3359 ICE



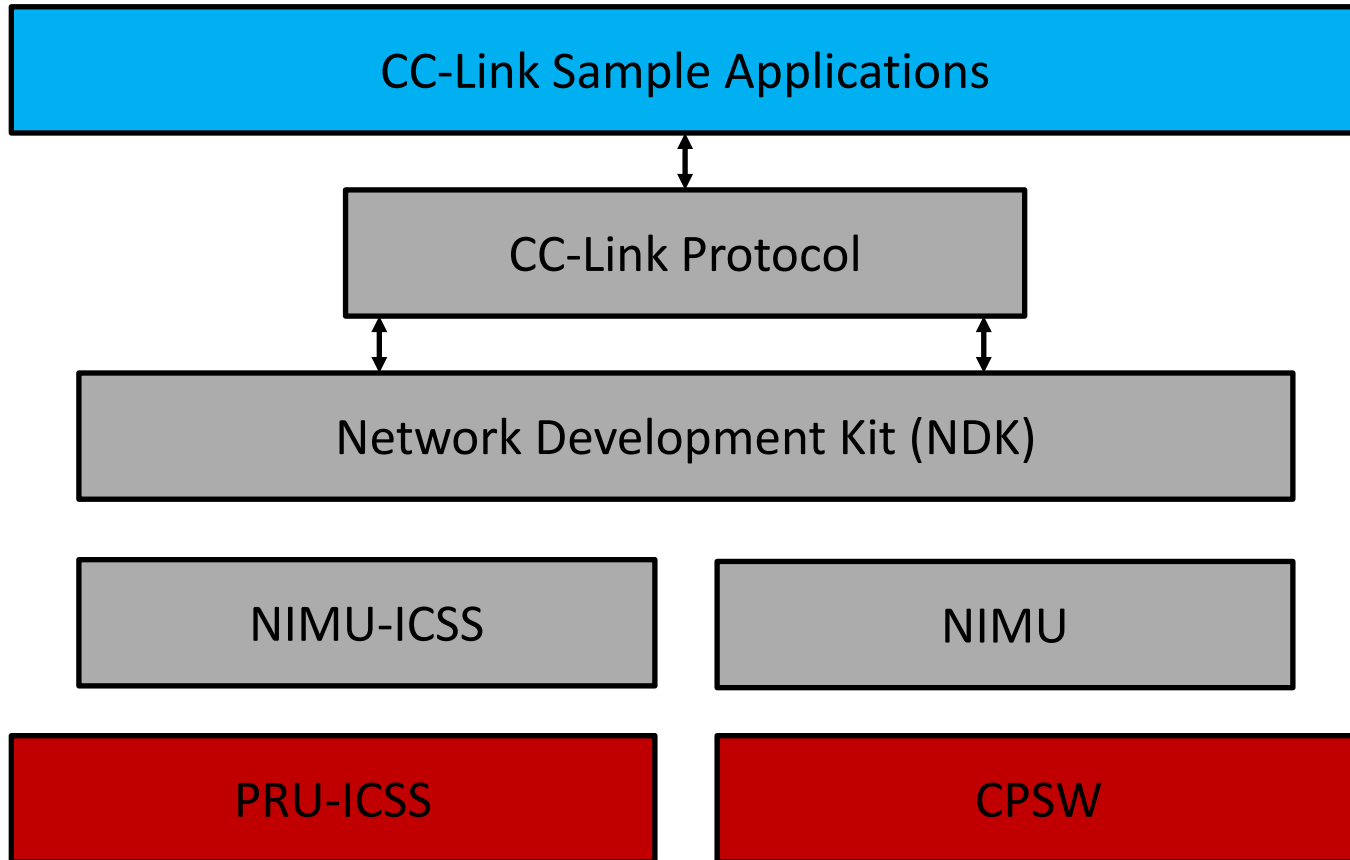
AM3359 ICE

PRU-ICSS0

PRU-ICSS0



CC-Link IEF Basic Software Stack





Console:

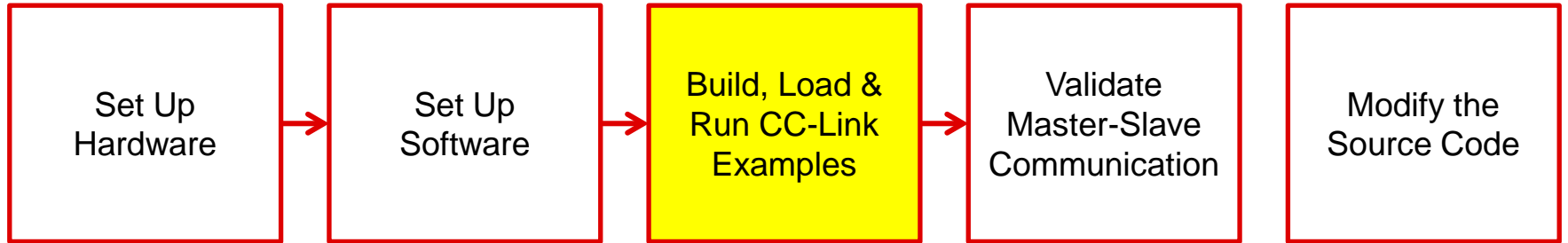
Navigate to /packages

Run pdksetupenv.sh

Console: Create CCS project for CC-Link

./pdkProjectCreate.sh

**AM335x icev2AM335x little nimu_icss all
arm**





CCS:

Import project

Build images

Launch target configuration

CCS:

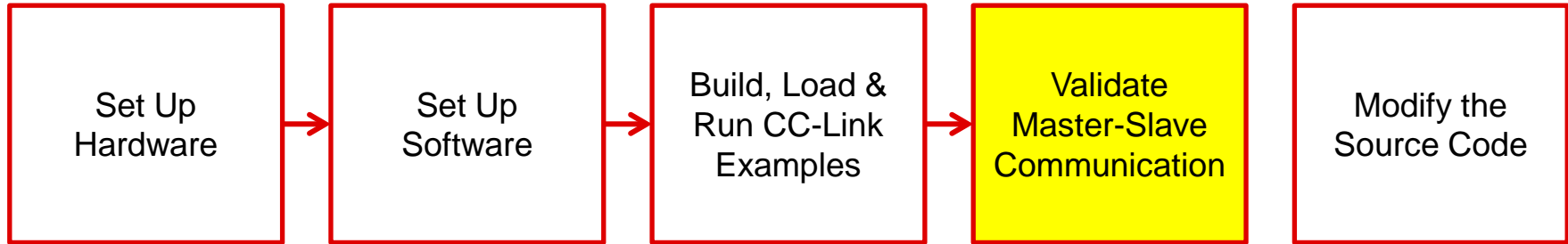
Connect cores

Load gel

Load master binary

Load slave binary

Run the demo



UART Console: Master

```
/dev/ttyUSB1 - PuTTY
boardName: AM572IDK
Start CC-Link IE Field Basic Master Station!
Show master parameter!

Master:
  IP Address:          192.168.3.100 (Master ID:0xc0a80364)
  Subnet mask:        255.255.255.0
  Default GW IP address: 192.168.3.1

Total Number of Group:      1
  Group No.1:
    Disconnection Time[ms]:  500 (0:500[ms])
    Disconnection Timeout Count: 2 (0:3)
    Constant Link Scan Time[ms]: Not use

Total Number of Slave:      1
  Slave No.1:
    IP Address:              192.168.3.4 (Slave ID:0xc0a80304)
    Occupied Station Number: 1
    Group Number:           1

Start cyclic of all the slaves!

Start the application!

Please input the following key values if you want any action.

'1' - Start the cyclic.
'2' - Stop the cyclic.
'3' - Start the application.
'4' - Stop the application.
'5' - Show information of the slave.
'6' - Show information of the master.
'7' - Show the parameter.
'Esc' - Exit the application.

Sending cyclic packets for 20 second to all slaves!

All tests have passed.
```

UART Console: Slave

```
/dev/ttyUSB1 - PuTTY
boardName: AM572IDK

Start CC-Link IE Field Basic Slave Station!

IP Address:          192.168.3.4
Subnet mask:         255.255.255.0
Default GW IP address: 192.168.3.1
Number of Occupied Stations: 1
Cyclic response wait time: 0[ms] (0:Not wait)

Show the cyclic information at 5-second intervals.

Master | Cyclic Data | Link scan time | Time Data

Master          - The control master station.(Master ID / Group Number)
Cyclic Data     - Count of the receive Cyclic Data at intervals.
Link scan time  - The link scan time at intervals.[ms]
Time Data       - The time from the master information data.

CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9238 | 0.5000[ms] | 2017-06-27 12:11:11
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9422 | 0.5000[ms] | 2017-06-27 12:11:16
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9346 | 0.5000[ms] | 2017-06-27 12:11:21
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9172 | 0.5000[ms] | 2017-06-27 12:11:25
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9053 | 0.5000[ms] | 2017-06-27 12:11:30
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=8916 | 0.5000[ms] | 2017-06-27 12:11:35
CCIEF-BASIC: Master(0xc0a80329/1) | Cyclic Data=9102 | 0.5000[ms] | 2017-06-27 12:11:40

All tests have passed.
```





Modify Source code:

Change ip adress.

Check the source code.



For More Information

- CC-Link IE Field Basic Master and Slave Reference Design:
<http://www.ti.com/tool/tidep-0089>
- Sitara Processors Product Overview: <http://www.ti.com/sitara>
- AM3359 Industrial Communications Engine: <http://www.ti.com/tool/tmdsice3359>
- Processor SDK for AM335x Sitara Processors:
<http://www.ti.com/tool/processor-sdk-am335x>
- Processor SDK Boot: http://processors.wiki.ti.com/index.php/Processor_SDK_RTOS_Boot
- Processor SDK Training Series: <https://training.ti.com/processor-sdk-training-series>
- Code Composer Studio (CCS) Integrated Development Environment (IDE):
<http://www.ti.com/tool/CCSTUDIO>
- For questions about this training, refer to the E2E Community Forums for Sitara Processors at http://e2e.ti.com/support/arm/sitara_arm/f/791/t/277411



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