

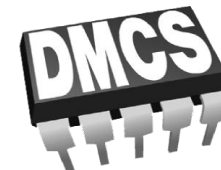


MTCA.4 RTM Carrier Board integration Realization status and open tasks

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MTCA.4 RTM Carrier Board Integration

Realization Status:

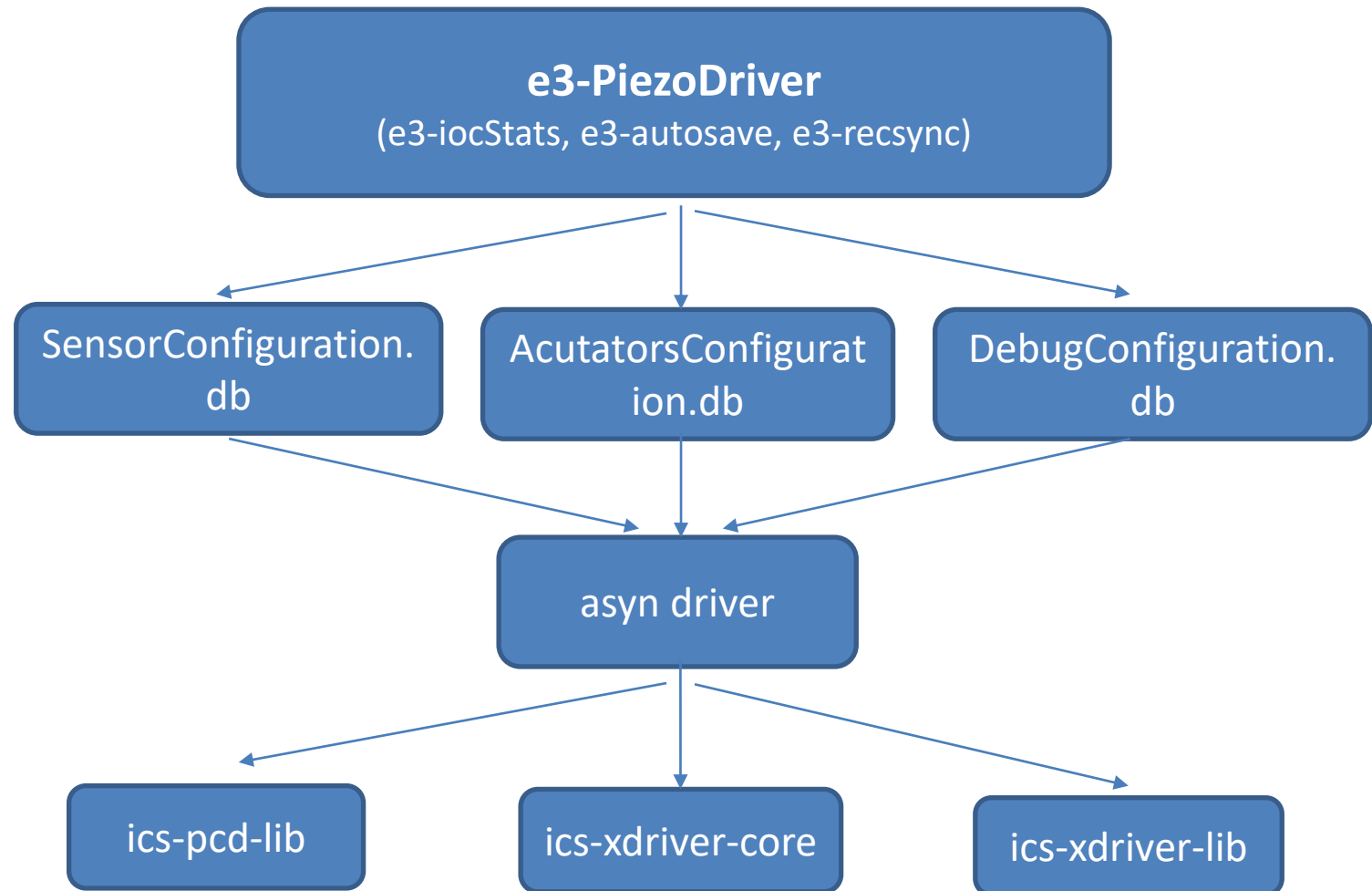
- Removed projects from main ESSFFW repository and put them into two new repositories.
- Updated LO RTM library and application in order to work with updated LO RTM CPLD firmware.
- Corrected bug in driver, where two IOCTLs were given the same identifier.

Open Tasks:

- Actually make the piezo driver firmware – which is not possible as we still do not have a framework-compliant BSP with working DDR3 from NCBJ.



IOC for Piezo Driver - Structure



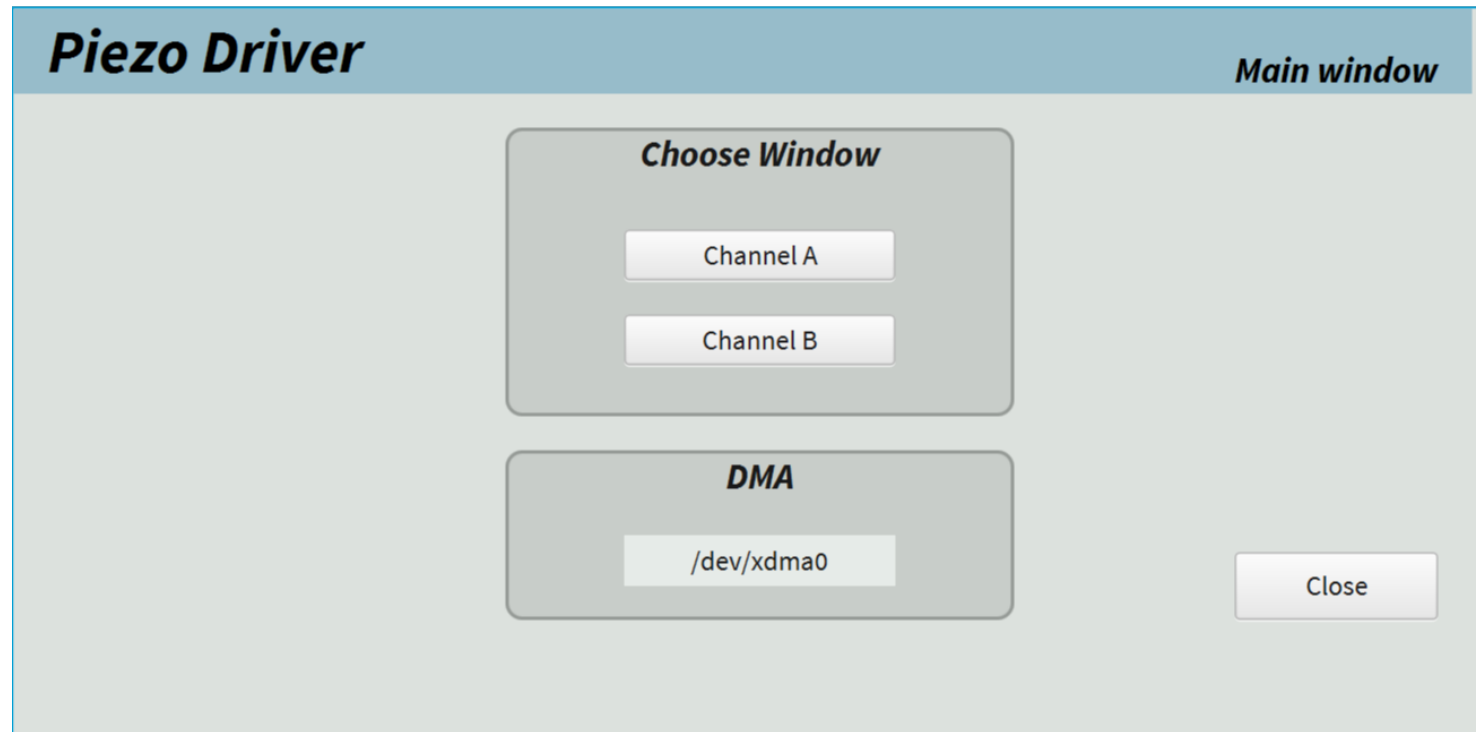


IOC for Piezo Driver - Structure

- Uses asyn driver based on API from Piezo Control device library (git submodules)
- Made of three .db files, one for each mode and last for general settings
- Working in one main thread in the infinite loop:
 - acquiring data
 - synchronising parameters changes
- Attached all necessary e3 modules: autosave, iocStats, recsync



IOC for Piezo Driver - OPI



- Composed of three windows:
 - Main panel
 - Channel A
 - Channel B



IOC for Piezo Driver - OPI



- Preview of generated signal (from file or from OPI)
- Data from ADCs (possible saving to file)
- Trigger configuration (slope, delay etc.)



IOC for Piezo Driver - Links

 Code on ESS gitlab:
<https://gitlab.esss.lu.se/kacperklys/e3-piezodriver>

Kacper Klys > e3-PiezoDriver > Details



e3-PiezoDriver 
Project ID: 1600

  Star 0  Fork 0

82 Commits 1 Branch 0 Tags 3.5 MB Files 3.5 MB Storage

PiezoDriver IOC for ESS



Auto DevOps
It will automatically build, test, and deploy your application based on a predefined CI/CD configuration.
[Learn more in the Auto DevOps documentation](#)
[Enable in settings](#)

master

e3-piezodriver / +

History

Find file

Web IDE



Clone

**Modify timestamp function**
KacperKlys authored 1 day ago e9f71922 

[README](#) [Add LICENSE](#) [Add CHANGELOG](#) [Add CONTRIBUTING](#) [Add Kubernetes cluster](#) [Set up CI/CD](#)

Name	Last commit	Last update
 cmds	Add timestamp with milliseconds to logs	1 week ago
 configure	Introduce e3 module version 1.0.0	4 weeks ago
 dkms	Introduce e3 module version 1.0.0	4 weeks ago



IOC for Piezo Driver - Links

- Documentation on confluence (will be updated soon):
<https://confluence.esss.lu.se/display/HAR/Piezo-driver+integration+-+IOC>

How to import .bob files

How to install e3 module

How to install kernel module

5. Before installing module one has to initialize and download submodules from external repositories:

update submodules

```
$ cd/e3-PiezoDriver  
$ git submodule init  
$ git submodule update
```

6. In the e3-PiezoDriver directory and type commands to install kernel module with dkms:

install kernel module

```
$ make dkms_add  
$ make dkms_build  
$ make dkms_install
```

7. To install module, in the same directory type following commands:

install whole module

```
$ make build  
$ make install
```

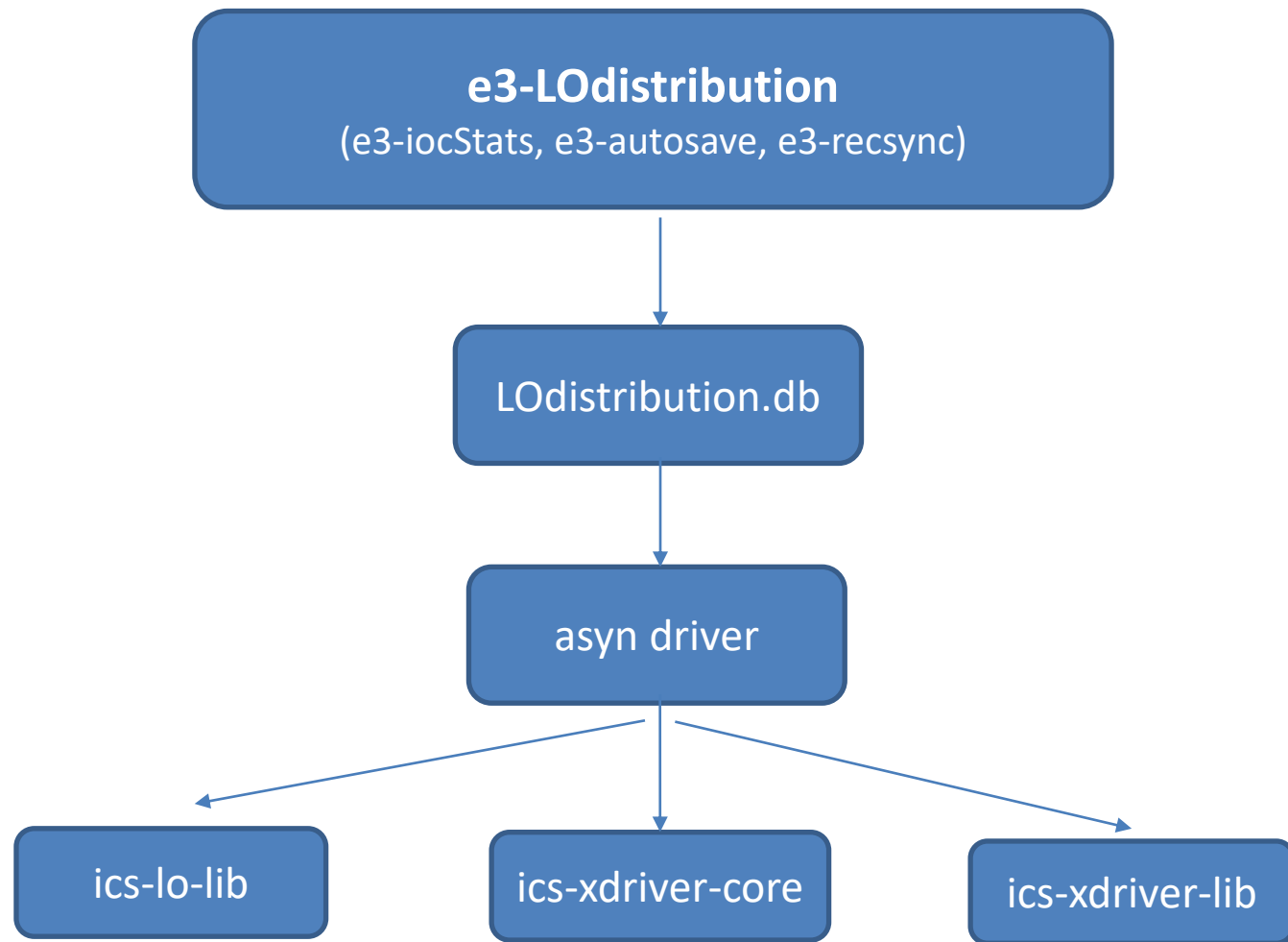
8. To run IOC, one can type

run ioc

```
$ iocsh.bash cmds/PiezoDriver.cmd
```




IOC for LO - Structure





IOC for LO - Structure

- Uses asyn driver based on API from LO library (git submodules)
- Made of one, main .db file
- Working in one main thread in the infinite loop synchronising parameters changes
- Attached all necessary e3 modules: autosave, iocStats, recsync



IOC for LO - OPI

LO Distribution Main Window

Status

☒ LO State No error reported

☒ Partial reset

☒ CLK

Configuration

Divider: 28 ☒ 22 ☐ 28

Boost: HSTL ☒ HSTL Boost ☐ HSTL

Dividers Type: Default ☒ Alternate ☐ Default

Power Readouts

Power Trigger Source: Manual ☒ Zone3 ☐ Manually

CLK Power: -17.0 dBm
LO Power: -17.0 dBm
REF Power: -17.0 dBm

Attenuation Configuration

Attenuation: 0 0

● Main window:

Enable CLK, LO

LO configuration (divider, boost, attenuation)

Power readouts in dbm



IOC for LO - OPI

LO Distribution Expert window

Bits

Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
☐	☐	☐	☐	☐	☐	☐	☐
LO_EN	PARTIAL_RESET	IF_SEL	IF_BOOST	CLK_EN	CLK_CFG	POW_STR_SEL	POW_STR
LO disabled	Reset active	IF divider 28	IF: HSTL	CLK enabled	default dividers	power measurement triggered by POW_STR	triggered power readout

General Information

Version: 0xEBD

Configuration: 0x0

DMA: /dev/xdma_lo

Power Details Hex

CLK Power: 0x000

LO Power: 0x0

REF Power: 0x0

● Expert window:

Bit descriptions and statuses

Software version

Power readouts in hex



IOC for LO Links

Code on ESS gitlab:
<https://gitlab.esss.lu.se/kacperklys/e3-lodistribution>

 **e3-LOdistribution** 
Project ID: 2299

  Star 0  Fork 0

 31 Commits  1 Branch  0 Tags  584 KB Files  584 KB Storage



Auto DevOps
It will automatically build, test, and deploy your application based on a predefined CI/CD configuration.
Learn more in the [Auto DevOps documentation](#)
Enable in settings



master 

e3-lodistribution /  

History

Find file

Web IDE

Clone 



Modify main panel status section
KacperKlys authored 1 day ago

a0816071 

 README

 Add LICENSE

 Add CHANGELOG

 Add CONTRIBUTING

 Add Kubernetes cluster

 Set up CI/CD

Name	Last commit	Last update
 cmds	Adapt to new firmware	2 weeks ago
 configure	Working dkms	4 weeks ago
 dkms	Working dkms	4 weeks ago
 docs	Init..e3-LOdistribution	7 months ago



IOC for LO - Links

Documentation on confluence (will be updated soon):
<https://confluence.esss.lu.se/display/HAR/LO+distribution+-+IOC>

How to import .bob files

How to install e3 module

How to install kernel module

5. Before installing module one has to initialize and download submodules from external repositories:

update submodules

```
$ cd/e3-LOdistribution
$ git submodule init
$ git submodule update
```

6. In the e3-LOdistribution directory type commands to install kernel module with dkms:

install kernel module

```
$ make dkms_add
$ make dkms_build
$ make dkms_install
```

7. To install module, in the same directory type following commands:

install whole module

```
$ make build
$ make install
```

8. To run IOC, use one of the provided cmd files. The only difference between them is presence of autosave and recsync modules in LOdistribution_autosave.cmd.

run ioc

```
$ iocsh.bash cmds/LOdistribution.cmd
or
$ iocsh.bash cmds/LOdistribution_autosave.cmd
```