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All Boards How To Understand JTAG BSDL

Document created by [jesseg](#)  on Aug 7, 2012 • Last modified by [Jodi Paul](#) on Mar 18, 2013
 Version 2

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How To Understand JTAG BSDL File

This example explains how to understand the BSDL file in order to create an OpenOCD configure file.

IR Len

That information can be retrieved directly:

```
attribute INSTRUCTION_LENGTH of imx_device: entity is 5;
```

This means that IR Len is 5, then in OpenOCD config it will be informed this way:

```
-irlen 5
```

IR Capture

The IR Capture also can be retrieved directly:

```
attribute INSTRUCTION_CAPTURE of imx_device : entity is "XXX01";
```

This means that IR Capture is 1, then in OpenOCD config it will be informed this way:

```
-ircapture 0x1
```

IR Mask

The IR Mask is based on IR Len size. Just create a binary number with "IR Len" bits 1.

If the IR Len is 4 then the IR Mask will be 0xF (1111). Case the IR Len is 5 the IR Mask will be 0x1F (11111).

In this BSDL example (IR Len = 5) the OpenOCD config needs to inform the IR Mask this way:

```
-irmask 0x1f
```

TAP ID

```
attribute IDCODE_REGISTER of imx_device : entity is
    "0010"           & -- Version
    "000110"         & -- Design Center Number
    "0100000001"     & -- Sequence Number
    "00000001110"    & -- Manufacturer Identity
    "1";             -- IEEE 1149.1 Requirement
```

This code can be converted directly to TAP ID:

Binary:

```
0010-0001-1001-0000-0001-0000-0001-1101
```

Hexadecimal:

```
2-1-9-0-1-0-1-D
```

Then in OpenOCD configure you will create:

```
if { [info exists SDMATAPID ] } {  
    set _SDMATAPID $SDMATAPID  
} else {  
    set _SDMATAPID 0x2190101d  
}
```

The final configure line will be:

```
jtag newtap $_CHIPNAME smda -irlen 5 -ircapture 0x1 -irmask 0x1f -expected-id $_SDMATAPID
```

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Last Modified by **Jodi Paul** on Mar 18, 2013 1:15 PM

1 Comment



jesse stone

Jan 24, 2018 9:37 PM

<https://cache.nxp.com/secured/NMG/MAD>

[/IMX6D_IMX6Q_21x21_BSDL.zip?__gda__=1516854170_c0e3cc5142b8f17bc2485159621b771b&fileExt=.zip](#)

[IMX6D_21x21_BSDL_TO1.2.bsd](#)

[0x2191e01d](#)

SDMA / no IDCODE

```
jtag newtap $_CHIPNAME sdma -irlen 4 -ircapture 0x00 -irmask 0x0f
```

System JTAG Controller

```
if { [info exists SJC_TAPID] } {
```

```
    set _SJC_TAPID $SJC_TAPID
```

```
} else {
```

```
set _SJC_TAPID 0x0191c01d
}
set _SJC_TAPID2 0x0191e01d
set _SJC_TAPID3 0x2191c01d
set _SJC_TAPID4 0x2191e01d #here

jtag newtap $_CHIPNAME sjc -irlen 5 -ircapture 0x01 -irmask 0x1f \
    -expected-id $_SJC_TAPID -expected-id $_SJC_TAPID2 \
    -expected-id $_SJC_TAPID3 -expected-id $_SJC_TAPID4
```

now is set for _SJC_TAPID not _SDMATAPID

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