Interfacing FlashRunner 2.0 with PIC32 devices

Algorithm Notes

Supported protocols:

- JTAG
- ICSP

Command List

The letter after the command names specifies on which memory region the command is to be executed:

- P: Program Flash
- B: Boot Flash
- U: Configuration Words and user ID
- C: entire chip (used only for the command MASSERASE)

Many commands support the parameters <start_addr> and <size>, that specify to execute the command, respectively, from which address and for how many addresses.

CONNECT

Powers-on the device, enters programming mode and checks if the device is locked.

MASSERASE

```
MASSERASE C
```

Erases all the memories of the device. This is the only command that can unlock a locked device.

```
MASSERASE <P|B>, or MASSERASE <C|P|B> <start_addr> <size>
```

Erases the selected memory or the specified pages of the memory. The last page of Boot memory cannot be erased, as it also contains the Configuration words. To erase this page, use the command **MASSERASE C**

BLANKCHECK

```
BLANKCHECK <P|B|U>, or BLANKCHECK <P|B|U> <start_addr> <size>
```

Checks that the selected memory is clear.

PROGRAM

```
PROGRAM <P|B|U>, or PROGRAM <P|B|U> <start_addr> <size>
```

Programs the selected memory using the data loaded into the FRB file.

VERIFY

```
VERIFY <P|B|U> <R|S>, or VERIFY <P|B|U> <R|S> <start_addr> <size>
```


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Verifies that the data written into the selected memory corresponds to the data of the FRB file. The verifying methods are

- Verify Readout (**R**): reads back the content of the memory and compares to the expected data.
- Verify CRC (**S**): compares the crc generated from the device with the expected crc.

The CRC method is faster than the readout method if the verified memory is big enough or if the protocol frequency is low. Thus, it is not recommended for small memories, or for the JTAG protocol.

READ

```
READ <P|B|U>, or READ <P|B|U> <start_addr> <size>
```

Reads the selected memory, printing it into the Communications Log.

DUMP

```
DUMP <P|B|U>, or DUMP <P|B|U> <start_addr> <size>
```

Reads the selected memory, writing its data into the file that was previously specified with the command **TPSETDUMP**.

RUN

```
RUN <seconds>
```

Powers the device without entering programming mode, so that the programmed code can be executed. A delay (in seconds) can be specified.

DISCONNECT

Powers-off the device.

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