Parallel Programming and Heterogeneous Computing

FPGA Accelerators - Metal FS Hands-On

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Hasso Plattner Institut
Digital Engineering · Universität Potsdam

Getting started with Metal FS

The Metal FS project lives on GitHub:

`https://github.com/osmhpi/metalfs`

Watch the intro video first (link on `https://osm.hpi.de/parProg`)!

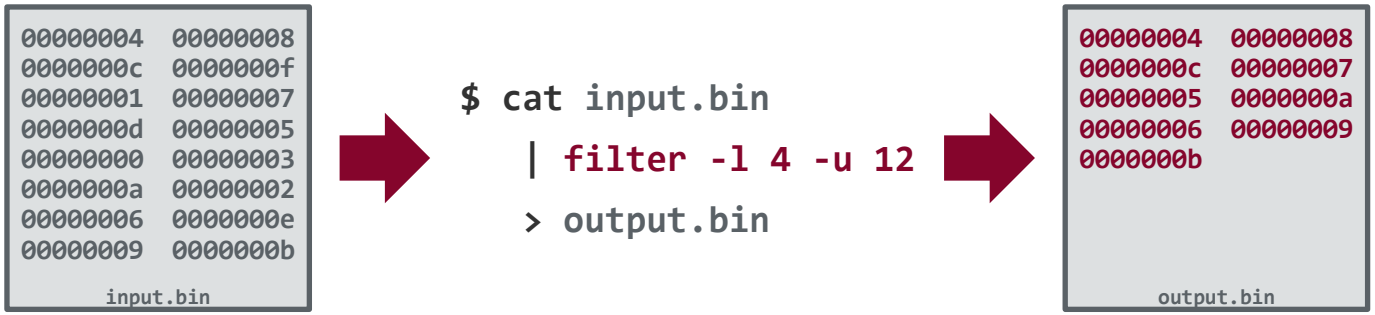
We are going to follow a modified version of this tutorial:

`https://metalfs.github.io/tutorial.html`

To follow along, you will need a platform with Docker and docker-compose.

Getting started with Metal FS

Build a Metal FS operator to filter unsigned 32-bit values.



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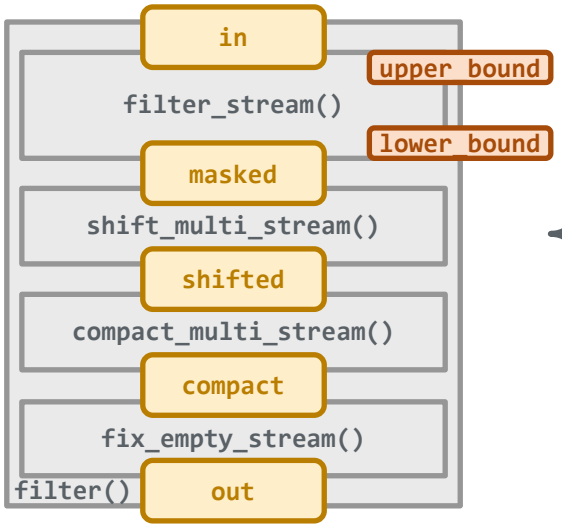


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  MaskedStream masked;
  ShiftedStream shifted;
  mtl_stream compact;

#pragma HLS DATAFLOW

  filter_stream(in, masked, lower_bound, upper_bound);

#if VALUE_COUNT > 1
  shift_multi_stream(masked, shifted);
  compact_multi_stream(shifted, compact);
#else
  compact_single_stream(masked, compact);
#endif

  fix_empty_stream(compact, out);
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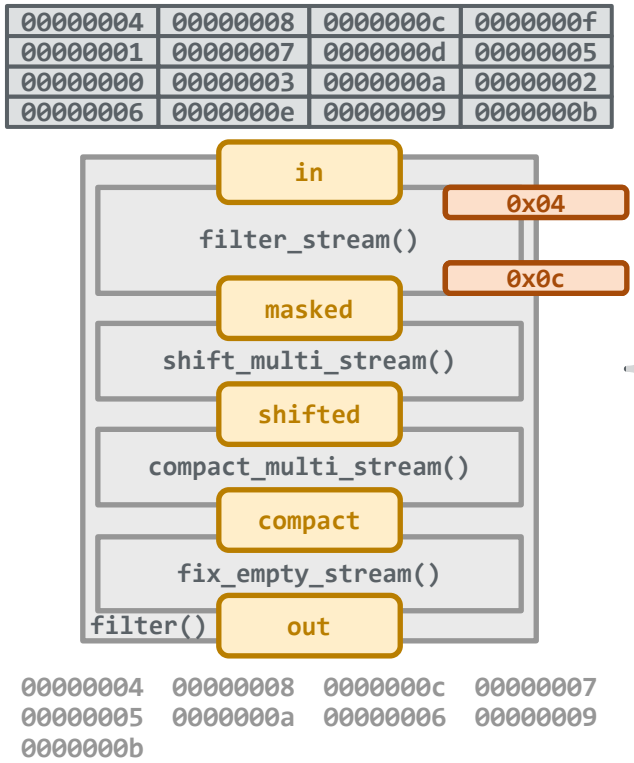


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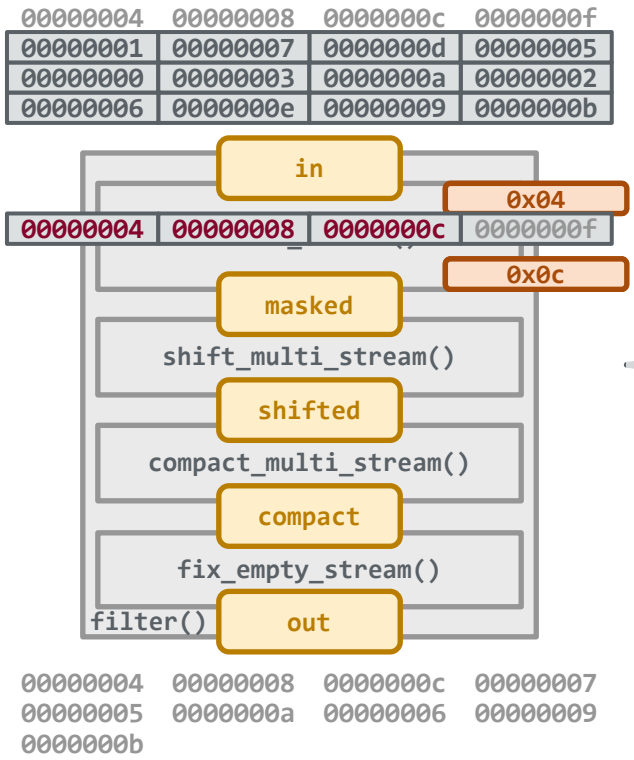


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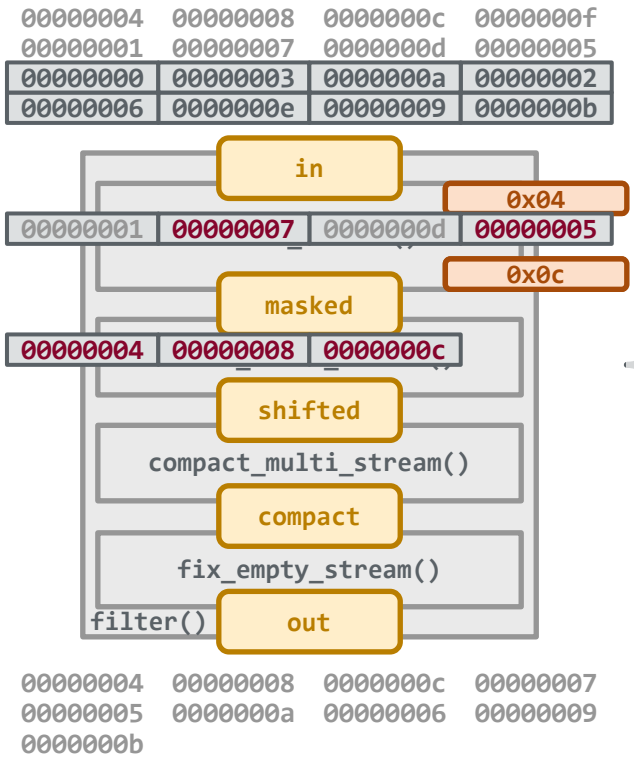


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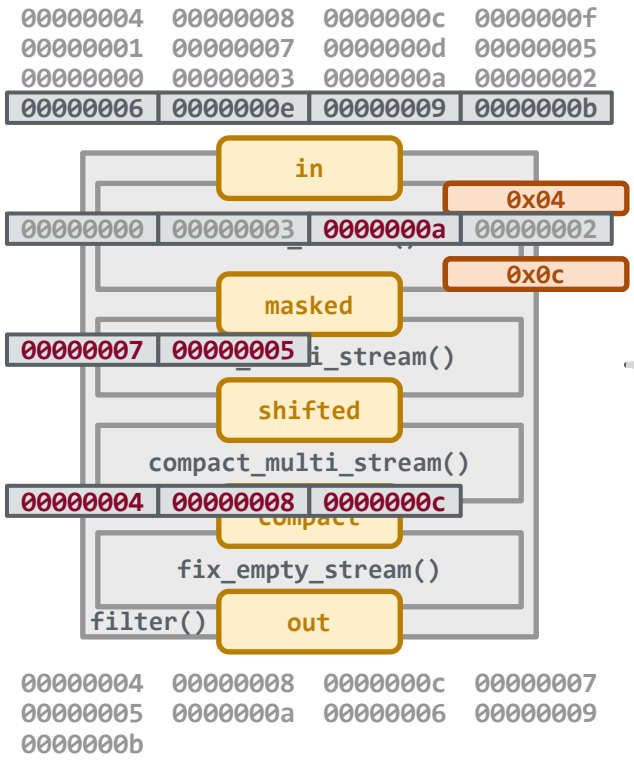
Chart **4.4**

Getting started with Metal FS

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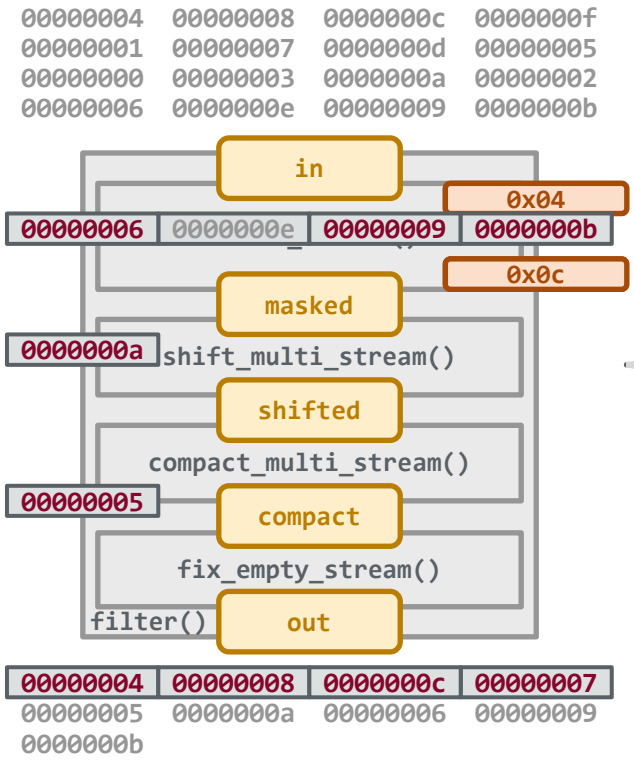


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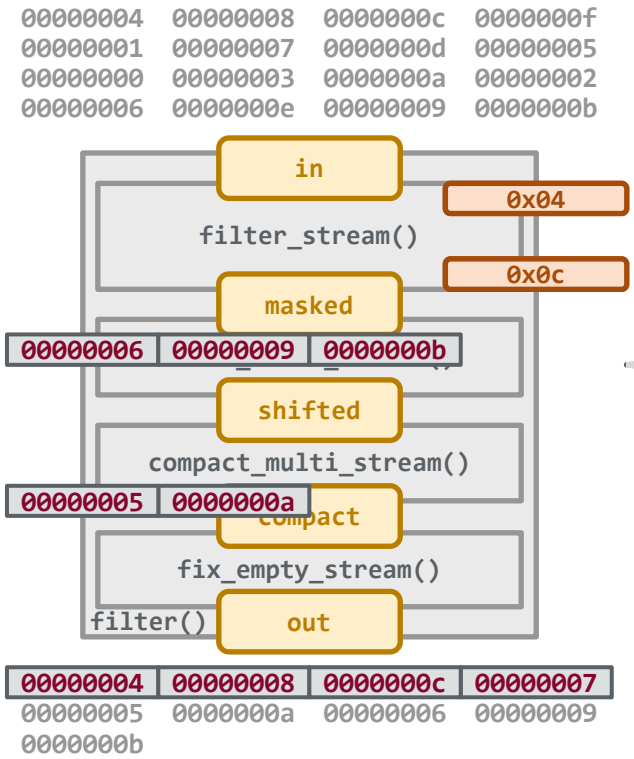


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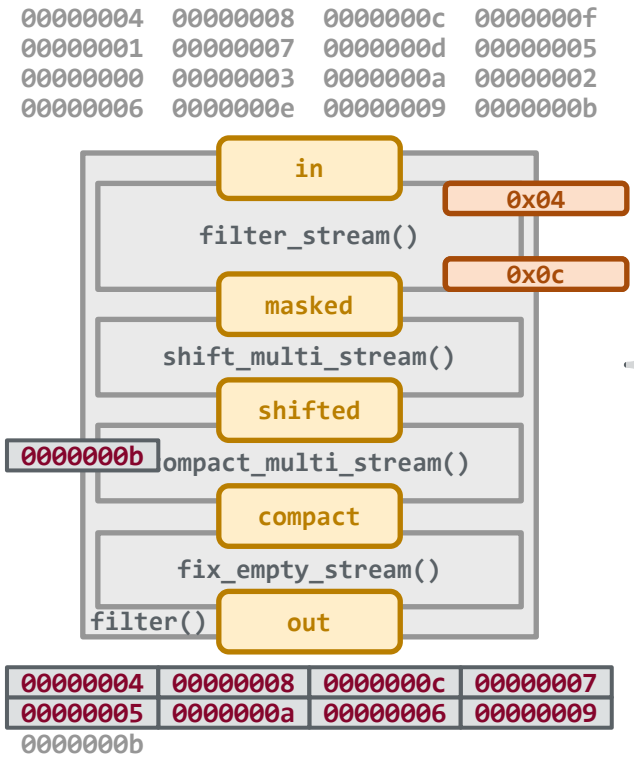


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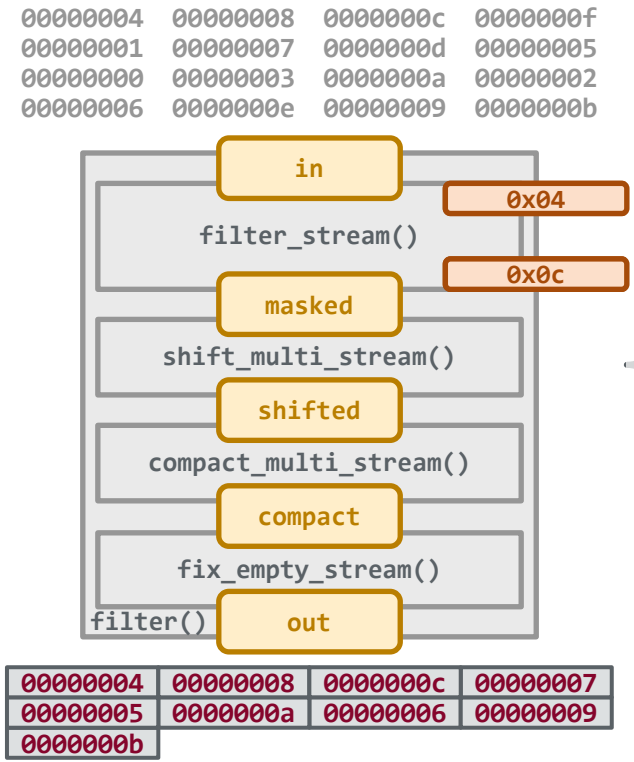


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And now for a break and some cold brewed Bancha.

*or beverage of your choice