

GNU Radio

Directions

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Overview of 3 new things

1. Message Passing Interface

2. Event Handling

3. Enhanced SIMD Support

MESSAGE PASSING INTERFACE

Asynchronous messages between blocks



```
gr_block1::work()
{
    // do some work
    tuple = (key, value);

    blk2_ptr->post(tuple);

    // do some more work
}
```

```
void
gr_block2::handle_msg(tuple)
{
    if(tuple['key'] = key0):
        handle_key0(tuple['value']);
    if(tuple['key'] = key1):
        handle_key1(tuple['value']);
    ...
    if(tuple['key'] = keyN):
        handle_keyN(tuple['value']);
}
```

EVENT HANDLING

Many signals don't fit a data flow model.

Use events to handle logical blocks.

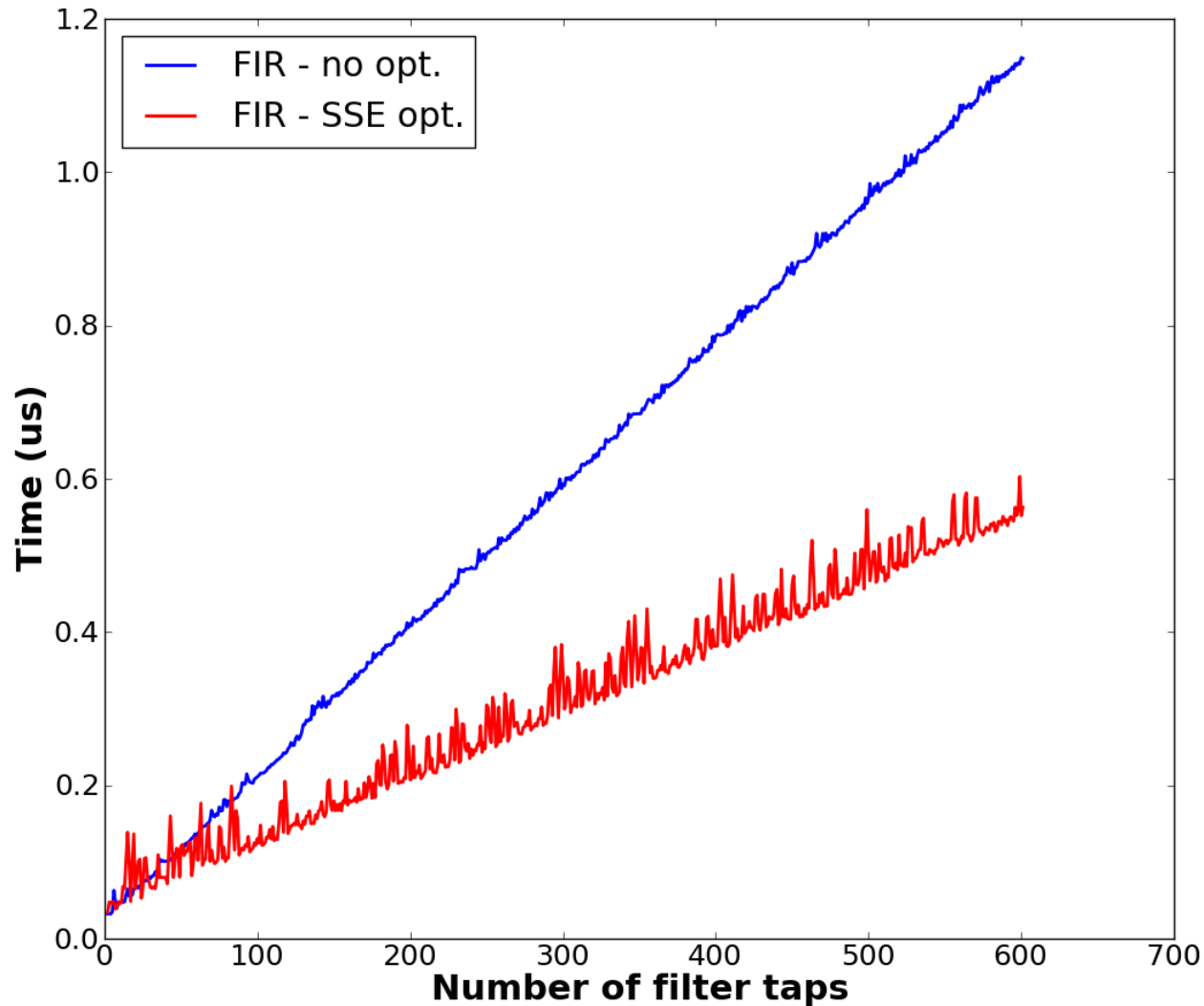


- Once detection of the preamble is found, an event would be triggered to handle the header
- From the header information about the payload, an event would be triggered to handle the payload

ENHANCED SIMD SUPPORT

libvsp

SIMD routines significantly improve the power of our routines.



Developers provide routines; Users call generic functions

Call generic *scale* function

```
gr_sigproc_block(vector in,  
                  vector out)  
{  
    float a = 10.0;  
    out = vsp_scale(in, a);  
    return;  
}
```

libvsp selects the right one

```
vsp_scale_generic(vector in,  
                  float c);  
vsp_scale_sse(vector in,  
              float c);  
vsp_scale_sse2(vector in,  
               float c);  
vsp_scale_neon(vector in,  
               float c);
```

Intel i7



vsp_scale_sse2