Mapping Example

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In this document, the XML and graphical representation of the wave field synthesis (WFS) application mapped onto the virtual shapes platform (VSP) are shown.

Figure 1: WFS Mapping.

```
01  <mapping>
02    <!-- process bindings -->
03    <binding name="binding_src_0" xsi:type="computation">
04      <process name="src_0"/>
05      <processor name="arm"/>
06    </binding>
07
08    <binding name="binding_src_1" xsi:type="computation">
09      <process name="src_1"/>
10      <processor name="arm"/>
11    </binding>
12
13    <binding name="binding_control" xsi:type="computation">
14      <process name="control"/>
15      <processor name="arm"/>
16    </binding>
17
18    <binding name="binding_conv_0_0" xsi:type="computation">
19      <process name="convolver_wrapper_0_0"/>
20      <processor name="magic"/>
21    </binding>
22
23    <binding name="binding_conv_0_1" xsi:type="computation">
24      <process name="convolver_wrapper_0_1"/>
25      <processor name="magic"/>
26    </binding>
27
28    <binding name="binding_conv_1_0" xsi:type="computation">
29      <process name="convolver_wrapper_1_0"/>
30      <processor name="magic"/>
31    </binding>
32
```
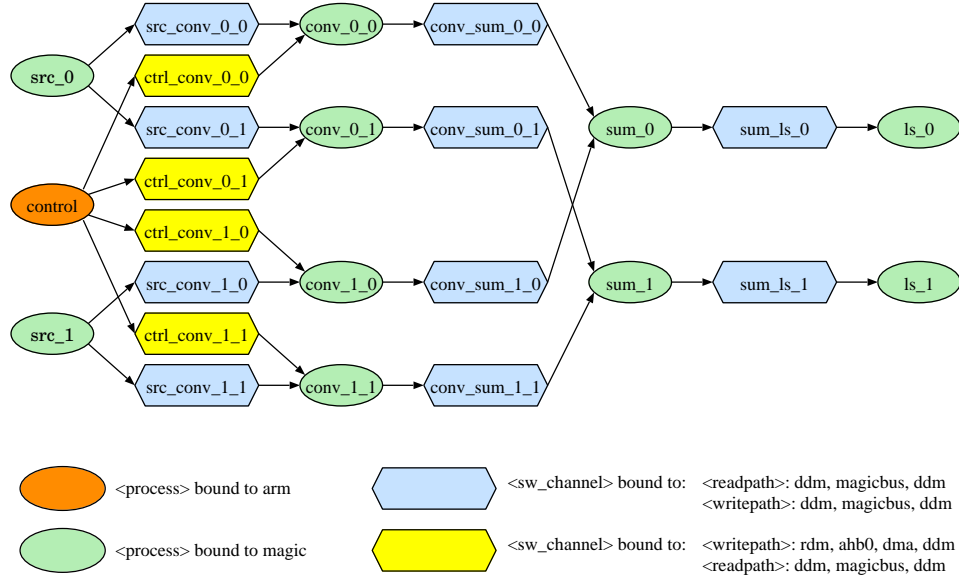
```
33    <binding name="binding_conv_1_1" xsi:type="computation">
34      <process name="convolver_wrapper_1_1"/>
35      <processor name="magic"/>
36    </binding>
37
38    <binding name="binding_sum_0" xsi:type="computation">
39      <process name="sum_0"/>
40      <processor name="magic"/>
41    </binding>
42
43    <binding name="binding_sum_1" xsi:type="computation">
44      <process name="sum_1"/>
45      <processor name="magic"/>
46    </binding>
47
48    <binding name="binding_ls_0" xsi:type="computation">
49      <process name="ls_0"/>
50      <processor name="magic"/>
51    </binding>
52
53    <binding name="binding_ls_1" xsi:type="computation">
54      <process name="ls_1"/>
55      <processor name="magic"/>
56    </binding>
57
58    <!-- channel bindings -->
59    <binding name="binding_src_conv_0_0" xsi:type="communication">
60      <sw_channel name="fifo_src_conv_0_0"/>
61      <writepath name="ddmddm"/>
62      <readpath name="ddmddm"/>
63    </binding>
64
65    <binding name="binding_src_conv_0_1" xsi:type="communication">
66      <sw_channel name="fifo_src_conv_0_1"/>
67      <writepath name="ddmddm"/>
68      <readpath name="ddmddm"/>
69    </binding>
70
71    <binding name="binding_src_conv_1_0" xsi:type="communication">
72      <sw_channel name="fifo_src_conv_1_0"/>
73      <writepath name="ddmddm"/>
74      <readpath name="ddmddm"/>
75    </binding>
76
77    <binding name="binding_src_conv_1_1" xsi:type="communication">
78      <sw_channel name="fifo_src_conv_1_1"/>
79      <writepath name="ddmddm"/>
80      <readpath name="ddmddm"/>
81    </binding>
82
83    <binding name="binding_ctrl_conv_0_0" xsi:type="communication">
84      <sw_channel name="fifo_ctrl_conv_0_0"/>
85      <writepath name="armrdmddm"/>
86      <readpath name="ddmddm"/>
87    </binding>
88
89    <binding name="binding_ctrl_conv_0_1" xsi:type="communication">
90      <sw_channel name="fifo_ctrl_conv_0_1"/>
91      <writepath name="armrdmddm"/>
92      <readpath name="ddmddm"/>
93    </binding>
94
95    <binding name="binding_ctrl_conv_1_0" xsi:type="communication">
96      <sw_channel name="fifo_ctrl_conv_1_0"/>
97      <writepath name="armrdmddm"/>
98      <readpath name="ddmddm"/>
99    </binding>
100
101   <binding name="binding_ctrl_conv_1_1" xsi:type="communication">
102     <sw_channel name="fifo_ctrl_conv_1_1"/>
103     <writepath name="armrdmddm"/>
104     <readpath name="ddmddm"/>
105   </binding>
106
```

```xml
107    <binding name="binding_conv_sum_0_0" xsi:type="communication">
108      <sw_channel name="fifo_conv_sum_0_0"/>
109      <writepath name="ddmddm"/>
110      <readpath name="ddmddm"/>
111    </binding>
112
113    <binding name="binding_conv_sum_0_1" xsi:type="communication">
114      <sw_channel name="fifo_conv_sum_0_1"/>
115      <writepath name="ddmddm"/>
116      <readpath name="ddmddm"/>
117    </binding>
118
119    <binding name="binding_conv_sum_1_0" xsi:type="communication">
120      <sw_channel name="fifo_conv_sum_1_0"/>
121      <writepath name="ddmddm"/>
122      <readpath name="ddmddm"/>
123    </binding>
124
125    <binding name="binding_conv_sum_1_1" xsi:type="communication">
126      <sw_channel name="fifo_conv_sum_1_1"/>
127      <writepath name="ddmddm"/>
128      <readpath name="ddmddm"/>
129    </binding>
130
131    <binding name="binding_sum_ls_0" xsi:type="communication">
132      <sw_channel name="fifo_sum_ls_0"/>
133      <writepath name="ddmddm"/>
134      <readpath name="ddmddm"/>
135    </binding>
136
137    <binding name="binding_sum_ls_1" xsi:type="communication">
138      <sw_channel name="fifo_sum_ls_1"/>
139      <writepath name="ddmddm"/>
140      <readpath name="ddmddm"/>
141    </binding>
142
143    <!-- schedules -->
144    <schedule name="armschedule" type="static">
145      <resource name="arm"/>
146      <origin name="control">
147        <configuration name="priority" value="1"/>
148      </origin>
149    </schedule>
150
151    <schedule name="magicschedule" type="static">
152      <resource name="magic"/>
153      <origin name="src_0">
154        <configuration name="priority" value="0"/>
155      </origin>
156      <origin name="src_1">
157        <configuration name="priority" value="1"/>
158      </origin>
159      <origin name="convolver_wrapper_0_0">
160        <configuration name="priority" value="2"/>
161      </origin>
162      <origin name="convolver_wrapper_0_1">
163        <configuration name="priority" value="3"/>
164      </origin>
165      <origin name="convolver_wrapper_1_0">
166        <configuration name="priority" value="4"/>
167      </origin>
168      <origin name="convolver_wrapper_1_1">
169        <configuration name="priority" value="5"/>
170      </origin>
171      <origin name="sum_0">
172        <configuration name="priority" value="6"/>
173      </origin>
174      <origin name="sum_1">
175        <configuration name="priority" value="7"/>
176      </origin>
177      <origin name="ls_0">
178        <configuration name="priority" value="8"/>
179      </origin>
180      <origin name="ls_1">
```

```
181        <configuration name="priority" value="9"/>
182      </origin>
183    </schedule>
184
185    <schedule name="ahb0schedule" type="fifo">
186      <resource name="ahb0"/>
187    </schedule>
188
189    <schedule name="dmaschedule" type="fifo">
190      <resource name="dma"/>
191    </schedule>
192
193    <schedule name="magicbusschedule" type="fifo">
194      <resource name="magicbus"/>
195    </schedule>
196  </mapping>
```

Listing 1: XML description of the WFS mapping.