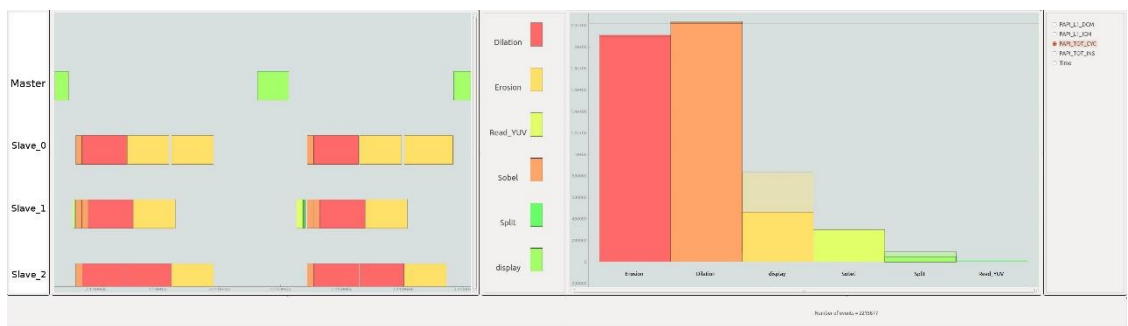


Users	<ul style="list-style-type: none"> Heterogeneous system designers/users with a need to monitor at run-time the actual values of the incumbent KPI 																
Key Features	<ul style="list-style-type: none"> Run-time KPI monitoring is a key enabler for adaptivity Best practices rules to minimize the overhead impact 																
Benefits for the User	<ul style="list-style-type: none"> Common high level abstraction to different technologies Actor-based seamless instrumentation 																
Inputs	<ul style="list-style-type: none"> PREESM Application Specification: At design time, PAPIFY uses both algorithm and architecture specifications described in PREESM by the user PAPI available events: PAPI library provides PAPIFY with the available events existing within the target platform User Monitoring Configuration: In the scenario file, users define for each actor the monitoring mode to be performed in execution time PAPIFY-VIEWER: performance results to be extracted using PAPIFY 																
Outputs	<ul style="list-style-type: none"> Instrumented Application: the application code automatically generated using PREESM is instrumented accordingly to the monitoring mode defined by the user at design time Performance Data: performance results extracted directly from the Performance Monitoring Counters existing within the SW cores and HW resources of the platform. These data are associated to each actor of the application and to the resource that is executing that specific actor PAPIFY-VIEWER: Graphical representation of a chronological view per actor of the activity of a dataflow specification. In addition, PAPIFY-VIEWER generates per-actor histograms of PAPI events 																
Block Design	<div style="display: flex; justify-content: space-around;"> <div data-bbox="319 1120 829 1523"> <p>PAPIFY structure</p> </div> <div data-bbox="845 1120 1436 1523"> <p>Runtime PAPIFY-SPiDER workflow</p> </div> </div>																
Example of Usage	<p>Developer/User input: PAPIFY-PREESM interface</p> <div style="border: 1px solid #ccc; padding: 10px;"> <p>Papify</p> <p>The events need to be associated to each actor independently</p> <p>Sobel</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>PAPI components</th> <th>Component type</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> perf_event</td> <td>CPU</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Event Name</th> <th>Short Description</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> Timing</td> <td>Event to time through PAPI_get_time()</td> </tr> <tr> <td><input checked="" type="checkbox"/> PAPI_L1_DCM</td> <td>Level 1 data cache misses</td> </tr> <tr> <td><input checked="" type="checkbox"/> PAPI_L1_ICM</td> <td>Level 1 instruction cache misses</td> </tr> <tr> <td><input type="checkbox"/> PAPI_L2_DCM</td> <td>Level 2 data cache misses</td> </tr> <tr> <td><input type="checkbox"/> PAPI_L2_ICM</td> <td>Level 2 instruction cache misses</td> </tr> </tbody> </table> </div>	PAPI components	Component type	<input checked="" type="checkbox"/> perf_event	CPU	Event Name	Short Description	<input checked="" type="checkbox"/> Timing	Event to time through PAPI_get_time()	<input checked="" type="checkbox"/> PAPI_L1_DCM	Level 1 data cache misses	<input checked="" type="checkbox"/> PAPI_L1_ICM	Level 1 instruction cache misses	<input type="checkbox"/> PAPI_L2_DCM	Level 2 data cache misses	<input type="checkbox"/> PAPI_L2_ICM	Level 2 instruction cache misses
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	<p><i>Outputs: PAPIFY-VIEWER Time view</i> <i>PAPIFY-VIEWER Events view</i></p>  <p>Role in the Toolchain Software and hardware monitoring</p>
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