



Award #: 1642440

CSSI Element: SI2-SSE: PAPI Unifying Layer for Software-Defined Events (PULSE)

PI: Anthony Danalis, Co-Pis: Heike Jagode

Institutions: University of Tennessee

- Libraries/runtimes generate multiple useful software “events”.
- Currently there is no standardized way for software to export information about its behavior such that other software layers can read it.
- PAPI SDE allows any software layer to export events.
 - e.g. “Tasks stolen” from task runtimes, “Matrix residuals” from math libraries.
- SDEs can be read using the standard PAPI functionality:
 - e.g. PAPI_start(), PAPI_stop(), PAPI_read()
- SDEs have minimal to zero performance overhead to libraries.
- New types of meaningful information can be associated with SDEs and actions triggered.
 - e.g. Comm. library “idle time”, Task runtime “starvation”, Math library “partial results ready”.
- SDEs enable novel types of analysis by tools.