



AGILE

ADVANCED GRAPHIC INTELLIGENCE LOGICAL COMPUTING ENVIRONMENT

INTELLIGENCE VALUE

The AGILE program seeks innovative, energy-efficient, and reliable computer architectures that can address the Intelligence Community's large-scale data-analytic applications, as well as other classes of data intensive applications. AGILE offers the potential to enable a predictive analysis of massive data from diverse sources and methods, not just forensic analysis after the event has occurred.

of the applications. AGILE system designs must emphasize optimization of the fully integrated system rather than independent optimization of individual functionalities (e.g., memory, computation, or communication), and must not be constrained by existing component interfaces and protocols, legacy architectures, or current practices.

A fundamental rethinking of computer architectures that can revitalize performance growth trends in computing capabilities is long overdue. Currently, there is a renewed interest in developing specialized hardware components. However, this approach will not resolve the fundamental data movement challenges that restrict the historical performance growth trends. The AGILE program will seed a new generation of computers with unprecedented pathways for continuing performance gains for the IC.

The AGILE BAA was released in November 2021 and the program is slated to run for three years.

TESTING AND EVALUATION PARTNERS

- Lawrence Berkeley National Laboratory
- Sandia National Laboratory
- Pacific Northwest National Laboratory

KEYWORDS

- Computer Architecture
- Data analytics
- Co-Design
- Data movement
- Modeling and simulation

The fundamental problem with current computer architectures is their inefficiency at operating on sparse, time-varying data that is randomly distributed across the system. The AGILE program seeks to solve this problem by developing new system-level intelligent mechanisms for accessing, moving, and storing complex data streams and structures that enable efficient data-analytic algorithms.

New architectures developed under the AGILE program will be driven by representative data-intensive applications through the co-design process. Co-design is a process for designing computer systems whereby the application requirements influence architecture decisions, and the architecture affects the design



Schematic of the AGILE Co-Design Process



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