

# Intel: FF1, Xstack/TG, DF1, FF2

ExMatEx: Atlanta

Bala Seshasayee, Josh Fryman, Bill Feiereisen,  
Intel Corporation  
September 23, 2014

***"As appropriate, these summaries may include project goals and objectives, & experiences and/or expectations of application co-design centers."***

- Intel has three axes of Co-Design with you
  - The Projects: FF1, FF2, Xstack/TG, DF1
  - The Proxies: ... We luv `em, but let's talk.
  - The Interactions: Hack-a-Thons, workshops, On-line meetings, Face-to-face at the Labs

# The Projects

- FF1: Advanced chip architecture/memory, current programming models
- Xstack/Traleika Glacier: Asynchronous programming Models
- DF1: On-off-die interconnects
- FF2: Advanced system architecture, transition between current and asynchronous models

# The Proxies

- We like `em ... however:
  - Are they too simple?
  - Are we missing multi-discipline interactions?
  - Are they too narrow in algorithms? Will we miss other things that will be necessary for a broad commercial product. Data analysis: graph, pattern search?
- Work with you on:
- Single-scale
  - SPMD proxy apps (eg, CoMD) for node-level data structures, performance, memory, power mgmt.
- System-level
  - data movement, fault mgmt., load balancing via async task-based MPMD scale-bridging proxy apps.
- At Scale? Simulators, Emulators
- Refactor? – this is a joint task

# Proxy Notes

- Proxy apps in C (or very simple C++)
  - Simple C++ can be easily translated to C
  - Our clang compiler doesn't have support for C++ yet
- Fairly standalone, without requiring many external dependencies (simple libraries like BLAS are ok)
  - But a C++ app requiring BOOST will be hard to bring up on our simulator

# Our interactions with you

- These have been VERY useful for us
  - Hopefully for you too. The regular collaboration as part of a group is characteristic of what we need to continue
  - Want more – are we both willing to spend the time?
- Hack-a-thons
  - Actual F2F with you in a room. We should do this all the time, BUT very time/logistics intensive. Can't sustain more than every six months?
- Intel Apps-POCs who have responsibility for a specific app
  - Carry on weekly on-line meetings with you
  - And travel to your lab to sit with you a couple days a month.
  - Also intensive. We both need to dedicate the people