Questions for breakout session

(intersection of low power electronics and advanced manufacturing)

- What is the FLOPS/watt needed in 2030?
  - What are the main challenges in terms of fundamental principles
  - Switches, memory devices, interconnects
- What are the main manufacturing challenges that need to be overcome?
- How does the IOT revolution change the roadmap that the semiconductor industry has followed so far?
- Rise of the thinking machines
  - Will Floating point operations remain a reliable benchmark for computing performance and thereby energy efficiency?

Holistic Goal

10 aJ/op

- Will lead to ~Zetascale/(20 MW) computer
- Need innovations
  - Devices
  - Memory   all equally important
  - Interconnects

- Research needs to be done on materials and technologies that are scalable
- Processing in memory may yield large benefits
- Cooling

Learning Machines

- Computers that specifically do data analytics may become a significant part of tomorrow's computing landscape

  - What is the performance metric (analogous to J/op) to quantify their energy efficiency?