EDA Needs at Advanced Technology Nodes

ISPD-2024 Panel

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Hmmm …. !

• EDA Needs at Advanced Technology Nodes

• v1: EDA Needs = What the Semi Industry Wants from EDA
  • Better, faster and cheaper traditional wisdom: only 2 out of 3
  • Tools for non-profitable markets 3D/HI, STCO/pathfinding
  • Irrational behavior interoperability, open APIs/formats/data, GPU/cloud-native reinvention

• v2: EDA Needs = What the EDA Industry Needs
  • More? $, respect, talent, investment, opportunity … (but, arguably, “in a good place”)

• v3: EDA Challenges
  • Tung-Chieh already has an excellent list !!! data for AI/ML; moving to GPU and cloud; scalable heuristics; co-optimization; … + advanced-node stuff

• v4: EDA Needs/Challenges = What Do We Need Help With?
EDA Needs: What Do We Need Help With?

- **Area (Power)**
- **Accuracy, Quality**

**EDA Today**
- EDA Today
- “Optimal”
- Clock Period (1/fmax)

**Tomorrow**
- EDA Today
- Tomorrow

**Who? and How?**

- **Quantify the Suboptimality Gap!**
- GPU, Cloud
- AI/ML
- Align Chained Optimization Goals
- Measure Progress!

- **Multiphysics ROMs**
- AI/ML
- Measure Progress!
EDA Needs: What Do We Need Help With?

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For whom?

WHO
Us

HOW
Suboptimality: solvers, search
Scale: clustering, hierarchy
Stability: sampling
Waste: commoditization
Accessibility: openness
Motivations: Serenity Prayer 😊