

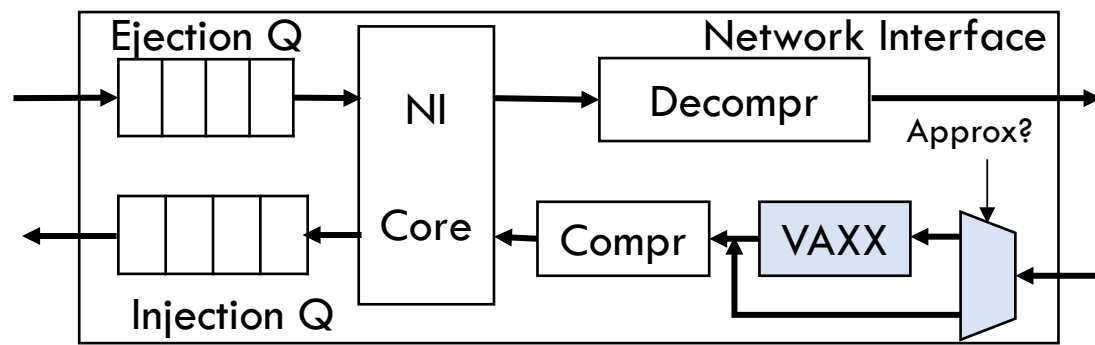
APPROX-NoC: A Data Approximation Framework for Network-On-Chip Architectures

Rahul Boyapati, **Jiayi Huang**, Pritam Majumder,
Ki Hwan Yum, Eun Jung Kim

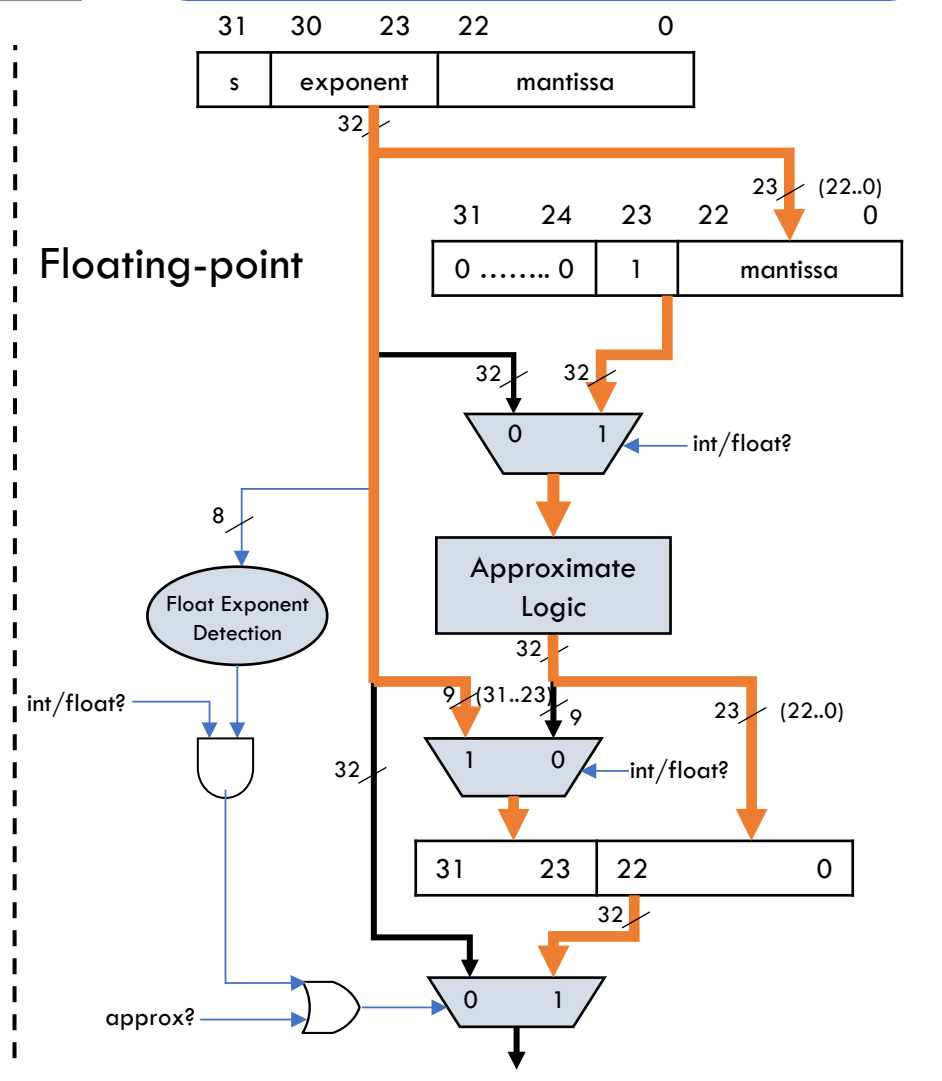
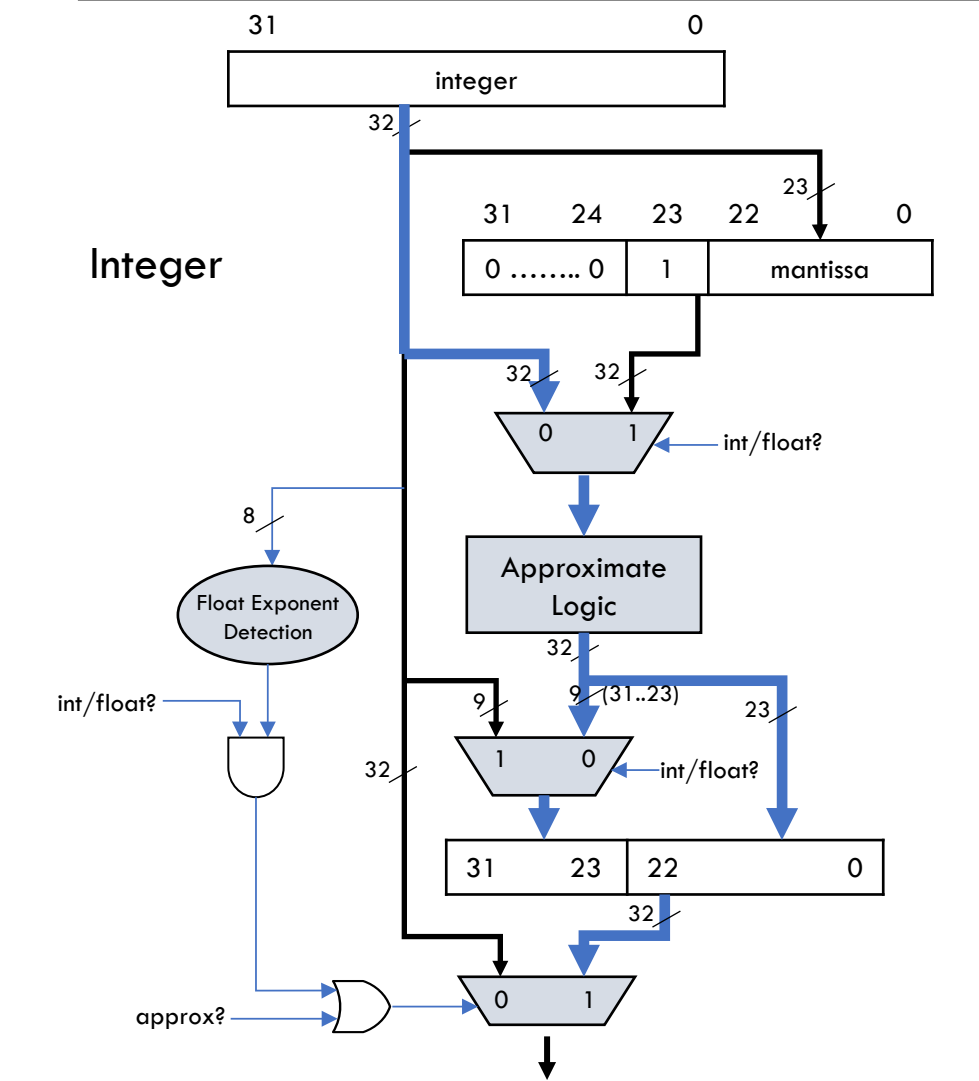
- Perfect **accuracy** is not required - **Approximation**
- Large amount of **data movement** - **Networks-on-Chip**

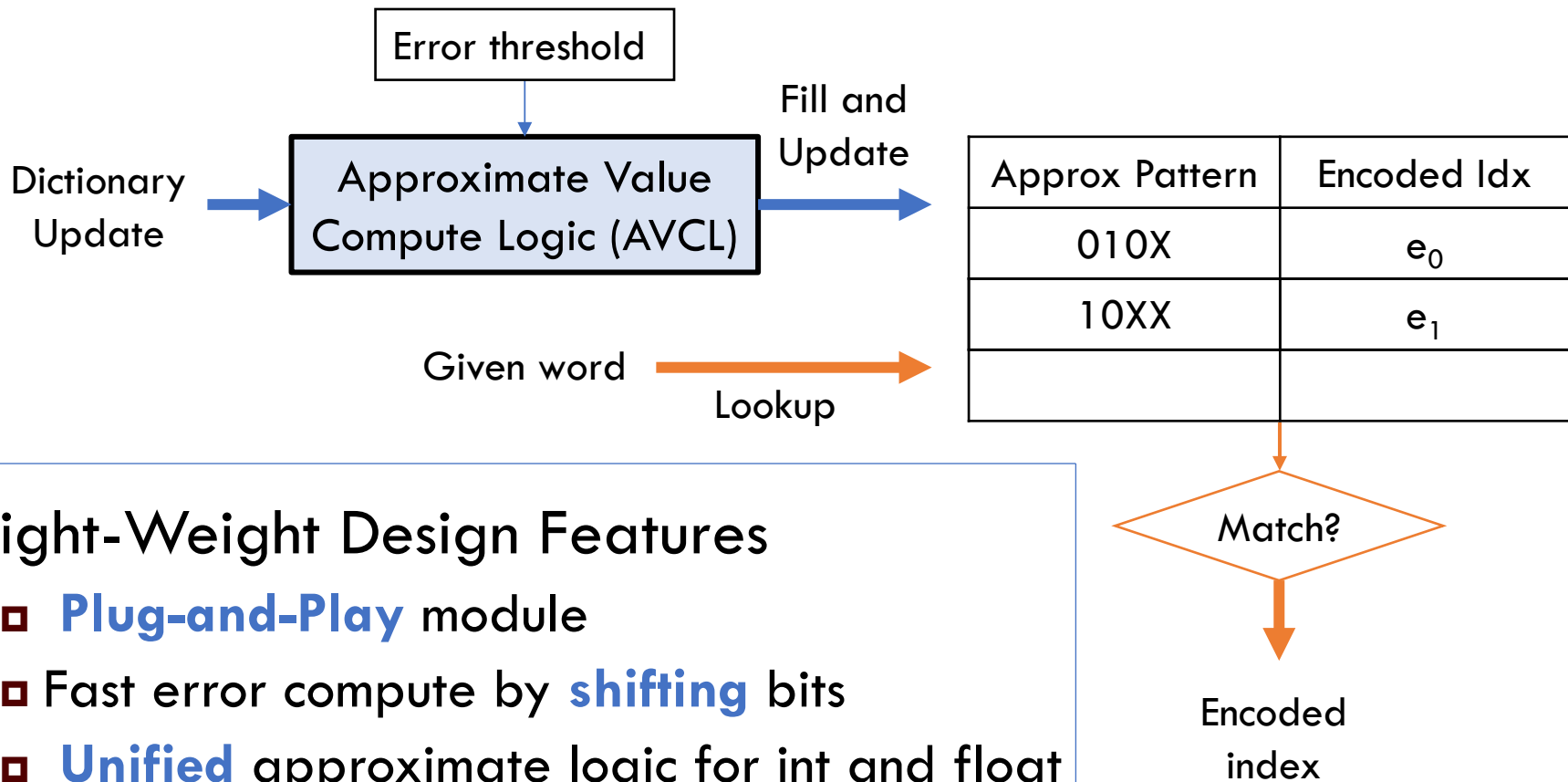
Approximation + NoC = APPROX-NoC

Leveraging ***Inaccuracy*** for ***High-Throughput*** NoC



Approximation can exploit **data similarity** and improve compression ratio





□ Light-Weight Design Features

- ▣ **Plug-and-Play** module
- ▣ Fast error compute by **shifting** bits
- ▣ **Unified** approximate logic for int and float

APPROX-NoC achieves:

- Up to 21% average packet latency reduction
- 69% throughput improvement.

Wednesday, 10:30am-11:50am, Session 9B-1