Chiplet Design Considerations FPGA use case

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Todays slides share considerations for chiplet developers

Chiplet Market is booming seems like a great idea to develop one and be early to market for open chiplets.

Barriers –

IP needed?
Die to Die standards – which one?
KGD - Redundancy?
KYC – know your chiplet?
Validation platform?
Marketplace?

IP Needed

- First what process ?
- Next Foundry target ?
- Packaging – standard, advanced?
- Die2Die PHY ? Bump Map? Bump pitch ?
- Link Layer ?
- Speed ?
- Power ?
- Clocking – PLL - 2Ghz?

- NO CENTRAL INFO RESOURCE

Die2Die standards

- BOW and UCIe
- BOW is more bare metal – more flexible
- Next Gen BOW 2.0 is around the corner
- UCIe is more fixed and less flexible

- Consider supporting both – if you want to increase TAM chiplet on open market

●KGD – known good die

- Chiplets economics work great when all the chiplets work
- As no rework - economics become a disaster if one fails
- Little secret ESD is being dramatically reduced for D2D

- We are working with a partner to run system level test on complete chiplet via Die2Die interface. Make sure chiplet is working fully in package. Can run @ power up & self test.

- Build in Redundancy into chiplet design – failure is not an option. Small chiplets especially critical. Not just at die2die interface. Advanced packaging more difficult to test.

●KYC – know your chiplets

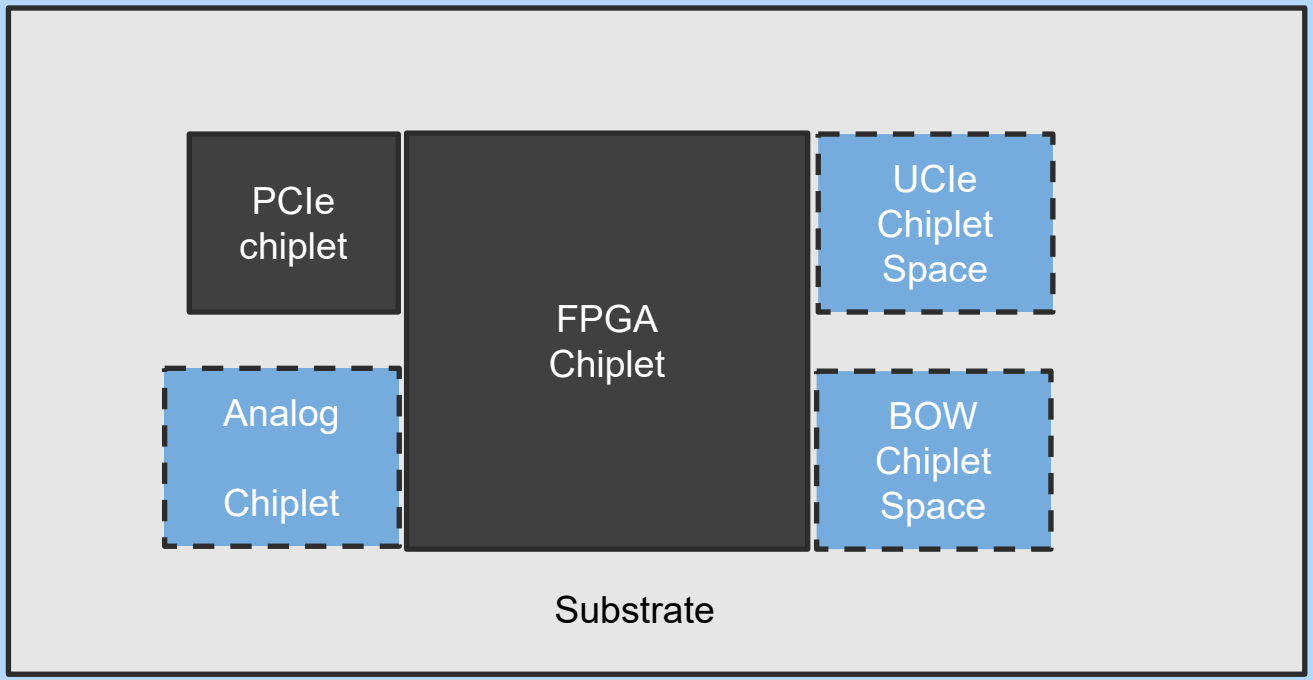
- As chiplets will be stored in die form
- Supply chain is important but not infallible
- Root of Trust security will be important

- We are working with a partner to secure our chiplets with unique identifier - technology is already out there

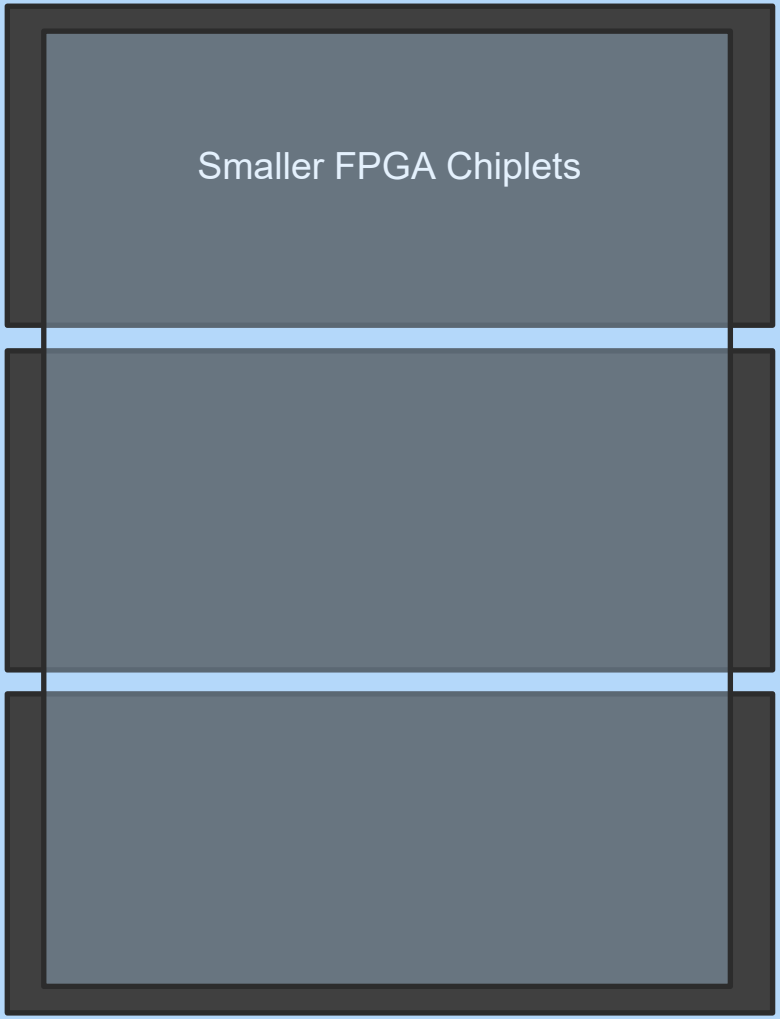
- Do consider root of trust or it or could limit your market

Validation of your chiplet?

- Currently no easy validation system exists
- We hope to have one by mid 2024
- Third party chiplets, ASICs, I/O chiplets



●Choices



Redundant Architecture
Any 2 of 3 must work
Program can be loaded depending on failure
Failure not an option

●Open Marketplace?

- Ooops there is no OPEN chiplet market yet
- Coming soon …. Hopefully