

ODSA: Technical Introduction ODSA Project Workshop at IBM September 12th, 2019

Consume. Collaborate. Contribute.

Agenda

Start Ti	ime	End Time	Speaker	Company	Topic
8	:30 AM	9:30 AM		IBM Auditorium	
9	:30 AM	9:40 AM Bapi Vinn	akota/Mendy Furmanek	Netronome/IBM	Welcome/Logistics
9	:40 AM	9:50 AM Archna H	aylock	OCP	Intro to OCP
9	:50 AM	10:00 AM Jeff Welse	er/Mendy Furmanek	IBM	IBM Welcome
10	:00 AM	Josh Fried 11:00 AM Jeff Stued	drich cheli	IBM	Exploiting Composable Heterogeneity through Open Architectures
11	:00 AM	11:15 AM Break		Sponsored by IBM	
11	:15 AM	11:25 AM Bapi Vinn	akota	Netronome	ODSA Technical Intro/Progress Summary
11	:25 AM	11:50 AM Jayapraka	ash Balachandran/Jawad Nasrullah/Manish Shah	Cisco/zGlue/Achronix	PoC Progress and Call for Participation
11	:50 AM	12:10 PM Mark Kue	merle	Avera Semi	BoW Interface Update
12	:10 PM	12:30 PM Robert W	ang	Analog X	PIPE Interface Update
12	:30 PM	12:45 PM David Kel	nlet	Intel	Link Layer update
12	:45 PM	1:30 PM Lunch		Sponsored by IBM	
1	:30 PM	2:30 PM Z. Bandic	, S. Fields, D. Jani, M. Kuemerle, mod B. Vinnakota	TBD	Open Uncore Panel
2	:30 PM	2:50 PM Ashwin Pe	oojary	Facebook	Monitoring
2	:50 PM	3:10 PM Animesh	Mishra/Robbie Adler	Intel	SImulation Models
3	:10 PM	3:30 PM Millind Mi	ttal	Xilinx	Xilinx and Chiplets
3	:30 PM	3:50 PM Bill Chen		IEEE	IEEE Heterogeneous Integration Roadmap
3	:50 PM	4:10 PM Eelco Ber	gman	ASE	ASE Heterogeneous Packaging
4	:10 AM	4:25 PM Break		Sponsored by IBM	
4	:25 PM	5:25 PM E. Bergma	an, M. Peng, W. Sauter, M. Hutner, mod S. Fuller	IEEE/IBM/Tesla/Avera/ASE	Packaging and Test Panel
5	:25 AM	5:30 PM Archna Ha	aylock/Bapi Vinnakota	OCP	Closing







The Open Domain-Specific Architecture

Two motivation for chiplets:

- Shrinking a board into a package
- Disaggregating a complex and/or large die

Different protocol stacks above the PHY layer



Multiple chiplets need to function as though they are on one die









ODSA Scope



Accelerators drive the requirements Chiplets are a means to meet requirements

Assemble DSAs from a library of ODSA-compliant chiplets.



OCP Form Factors drive Power, I/O Footprint, Performance







Reference architectures for: Networking, Storage, Inferencing, Training, Video and Image processing







Active Projects

Project	Objective	Organizations Participating	Recent Results	Upcoming Milestones	Needs
PHY Analysis	PHY requirements PHY analysis Cross-PHY abstraction	Alphawave, AnalogX, Aquantia, Avera Semi, Facebook, Intel, Kandou, Netronome, zGlue,	PHY Analysis paper (published at Hot Interconnect)	PIPE abstraction	
BoW Interface	No technology license fee, easy to port inter-chiplet interface spec	Aquantia, Avera Semi, Netronome	BoW Interface proposal (published at Hot Interconnect)	BoW specification 0.7 End September, 2019	Test chips, Chiplet library supporting interface
Prototype	product that integrates existing die from multiple companies into one package	Achronix, Cisco, Netronome, NXP, Samtec, Sarcina, zGlue, Macom, Facebook	Decomposable design flow.	Committed schedule	End user End user participation ~30% funding is open
Chiplet design exchange	Open chiplet physical description format.	Ayar, NXP, zGlue,	Draft spec	ZEF Exchange format draft specification	
Link and Network Layer	Interface and implementations – requirements and proposals	Achronix, Avera Semi, Intel, Netronome, NXP, Xilinx			
Reference Architectures	I/O, Compute, Memory, functional partition for SmartNIC, Inferencing, Storage, Learning, Image/Video				
Chiplet proposals	Proposals based on interfaces for chiplets for common functions				
Business workflow	Formalize learnings from prototype effort				





Wiki: <u>https://www.opencompute.org/wiki/Server/ODSA</u>, meet Fridays at 8 AM Pacific Time. Please join us.



Chiplet Design Exchange Subgroup

CHARTER

- Chiplet Machine Readable Description Standard Generation
- Chiplet Catalog starting with a public catalog, hanging off the ODSA wiki
- PChiplet based SDV to Chiplet based package conversion flow



CALL TO ACTION – JOIN US

- Looking for EDA, OSAT, Design Service, Chiplet Vendor, Distributor participation.
- Define a flow for PCB to Package conversion
- Setup a CDX service of your own
- List your Chiplets
- Share your requirements and wishlist for Chiplets
- Contact Jawad Nasrullah, jawad@zglue.com, for participation





Packaged PoC Part

INDUSTRY SURVEY

ODSA Survey Responses - from Execs, BD & Marketing



- Executives and Business Developers indicate the need for Chiplet sharing mechanism.
- As business thinking develops and business need arises, willingness to participate in a marketplace will increase. CDX effort will help.





OCP Market Survey - IHS

- An independent survey on the market size for chiplet-based designs at chip vendors, hyperscalers, service providers and systems vendors worldwide.
- Aim to complete a preliminary release of the data by the regional summit in Amsterdam, more complete data to follow.
- Analyst, Tom Hackenberg (tom.hackenberg@ihsmarkit.com) is here at the workshop. All data will be anonymized and reported in aggregate.
- Please engage with him if you would like to provide primary data. Survey results will be publicly available.









Please Help! Join a Workstream





Join Business, IP and workflow: (Sam Fuller/Dharmesh Jani)

Define test and assembly workflow



Workstream contact information at the ODSA wiki

Open. Together.

Technology



Thank you to IBM/Mendy/Anthony





