INTEL EXTREME PERFORMANCE USERS GROUP

www.ixpug.org

@IXPUG1

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What is IXPUG?

http://www.ixpug.org/

- Now **I**ntel e**X**treme **P**erformance **U**sers **G**roup
- Global community-driven organization (independently ran)
- Fosters technical collaboration around tuning for Intel® architecture
- Freely exchanging best practices, experiences and ideas
- Worldwide activities that open to the public
- Strong technical support from industry and Intel experts

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Why did the name change?

We are moving from "**Intel Xeon Phi User Group**" to "**I**ntel e**X**treme **P**erformance **U**sers **G**roup" (still abbreviated IXPUG).

This name change reflects an expanding focus, to include: system **hardware beyond the processor** (e.g. memory, interconnect); **software tools** and **programming models**; and **new workloads** (e.g. visualization, data analytics, machine learning).

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16 major events in ~2 years!

SC16 Salt Lake City, Utah | hpc matters.
Argonne NATIONAL LABORATORY
NERSC
TACC
SC17 Denver, CO | hpc connects.
SC15 Austin, TX | hpc transforms.
UNIVERSITY OF CAMBRIDGE
ISC High Performance The HPC Event
CINECA
IT4Innovations national supercomputing center
POLYTECH Peter the Great St.Petersburg Polytechnic University
HPC Asia 2018

IXPUG Event Momentum

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Jul'13: 1st IXPUG Conf (Texas)

Apr'14: IXPUG Workshop (Texas)

Jul'14 IXPUG Annual Conf (Texas)

Nov'14 IXPUG Bird of Feather

Sep'15: IXPUG Annual Conf (US)

Jul'15: ISC IXPUG Workshop & BoF

IXPUG Bird of Feather Nov'15

Jun'16: IXPUG KNL Launch Tutorial

Jun'16: IXPUG Workshop (Russia)

Jul'16 IXPUG Workshop & BoF

Nov'16 Intel HPC Dev Con

Nov'16 IXPUG Bird of Feather

Mar'16: IXPUG Annual Conf (Europe)

Sep'16: IXPUG Annual Conf (US)

Apr'17: IXPUG Annual Conf (UK)

Sep'17: IXPUG Annual Conf (US)

Jul'17: IXPUG Workshop & BoF

May'17: IXPUG Visualization Workshop (US)

Jun'17: IXPUG Workshop (Russia)

Nov'17: SC'17 Bird of Feather

Mar'18 IXPUG Annual Conf (Italy)

Sep'18 IXPUG Annual Conf (Oregon)

Jan'18: IXPUG Workshop

Apr'18: IXPUG Workshop (Saudi Arabia)

Jul'18: IXPUG Workshop

25+ events; **200+** publications; **550+** members

All technical presentations and recordings are posted on www.ixpug.org

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Upcoming IXPUG Events

Date	Location	Event	Description
July 10-12, 2018	Lemont, IL	IXPUG Software-Defined Visualization Workshop	This 3-day is aimed at simulation developers and domain experts with simulation implementation expertise. After an initial orientation to in situ capabilities, the workshop will combine domain expert attendees with visualization experts from Argonne, TACC, Kitware, Intelligent Light, and Intel to design and implement a proof-of-concept in situ visualization for each attendee's simulation. The workshop will provide a functional prototype on which to continue in situ development, as well as identifying barriers to in situ analysis for particular scientific domains.
August 9, 2018	Virtual	IXPUG Working Group	"**Machine Learning at Scale**" In climate, we apply deep learning to detect and localize extreme weather events such as tropical cyclones, atmospheric rivers and weather fronts in large-scale simulated and observed datasets. We will also discuss the challenges involved in scaling deep learning frameworks to supercomputer scale, and how to obtain optimal performance from supercomputing hardware.
September 25-28, 2018	Hillsboro, Oregon	IXPUG Annual Fall Conference	This meeting is co-organized by Sandia National Lab and Los Alamos National Lab and will be held at Intel Corporation (Hillsboro, Oregon). This conference will be focused on Application characterization on emerging technologies (HBM, NVM, Quantum, Xeon, Xeon Phi, FPGAs, etc.), implications of workload behavior on system design at extreme scale (power, reliability, scalability, performance, processor design, memory systems, I/O, etc.), software environments and tools for computing at extreme scale (instrumentation, debugging/correctness, thread and process management, libraries and language development, etc.), experiences using extreme scale systems (usability, In-Situ visualization, programming challenges, algorithms and methods, etc.) and covering key topics that touch HPC, AI, Data Analytics, Systems and Cloud.

IXPUG Software-Defined Visualization Workshop

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Date: July 10-12, 2018

Location: Lemont, Illinois (US)

Registration: **https://www.ixpug.org/swdvis-registration-2018**

Agenda: preliminary agenda is posted at https://www.ixpug.org/events/swdvis-2018 and a final agenda is to come

Note: this event is open to the public and all attendees must complete the "**Argonne National Laboratory Visitor Preparation**", prior to event.

Focused on all aspects of employing, adopting many-core processing technologies and techniques for optimal application execution. Including topics that cover system hardware beyond the processor (memory, interconnect, etc.), software tools, programming models, new workloads (visualization, data analytics, machine learning, etc.) and more. Providing an interactive experience focused on key topics associated with high-performance computing, artificial intelligence, data analytics, cloud computing, and more. Co-organized by Sandia National Lab and Los Alamos National Lab and held at Intel Corporation (Hillsboro, Oregon).

Date: September 25-28, 2018

Location: Intel Corporation (Jones Farm Conference Center, JFCC Building, 2111 NE 25th Avenue Hillsboro, Oregon 97124)

Registration: https://www.ixpug.org/events/ixpug-fallconf-2018

Agenda: provided upon completion fo the abstract selection process and posted on the website by August 6, 2018.

Cost: Free and open to the public meeting and all are welcome to join

Call for Abstracts: Submit NOW through July 13, 2018 (AoE) at https://easychair.org/conferences/?conf=ixpugfallconf2018

Important dates:

- **Abstract submission timeline:** March 14, 2018 – July 13, 2018 (AoE)
- **Final date to submit abstract:** July 13, 2018 (AoE)
- **Acceptance notification:** July 27, 2018 (AoE)
- **Agenda posted:** August 6, 2018
- **Registration deadline:** September 11, 2018
- **Speaker's Final Presentation Uploaded to EasyChair:** September 24, 2018

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IXPUG Working Groups

Focused on fostering collaborations of cross sharing open standard techniques, best practices, etc.

- **Timeline:** ~monthly virtual conferences meetings
- **Attendance:** combination of Intel experts and industry luminaries
- **Cost:** this is a **FREE**, open to the public meeting and all are welcome to join
- **Registration:** https://www.ixpug.org/working-groups for more information
- **Material Location:** all technical presentations and recordings are posted on the website mentioned above

Date	Description
June 14, 2018	"**Using Roofline Analysis to Analyze, Optimize & Vectorize Iso3DFD with Intel® Advisor**" Introducing the use of Intel® Advisor to help you enabling vectorization in your application. We will use the Roofline Model in Intel Advisor to see the impact of our optimizations. We will also demonstrate how Intel Advisor can detect wrong memory access patterns or loop carried dependency in your application. The case study we will use is Iso3DFD. This kernel is propagating a wave in a 3D field using finite difference with a 16th order stencil in an isotropic media
August 9, 2018	"**Machine Learning at Scale**" In climate, we apply deep learning to detect and localize extreme weather events such as tropical cyclones, atmospheric rivers and weather fronts in large-scale simulated and observed datasets. We will also discuss the challenges involved in scaling deep learning frameworks to supercomputer scale, and how to obtain optimal performance from supercomputing hardware.

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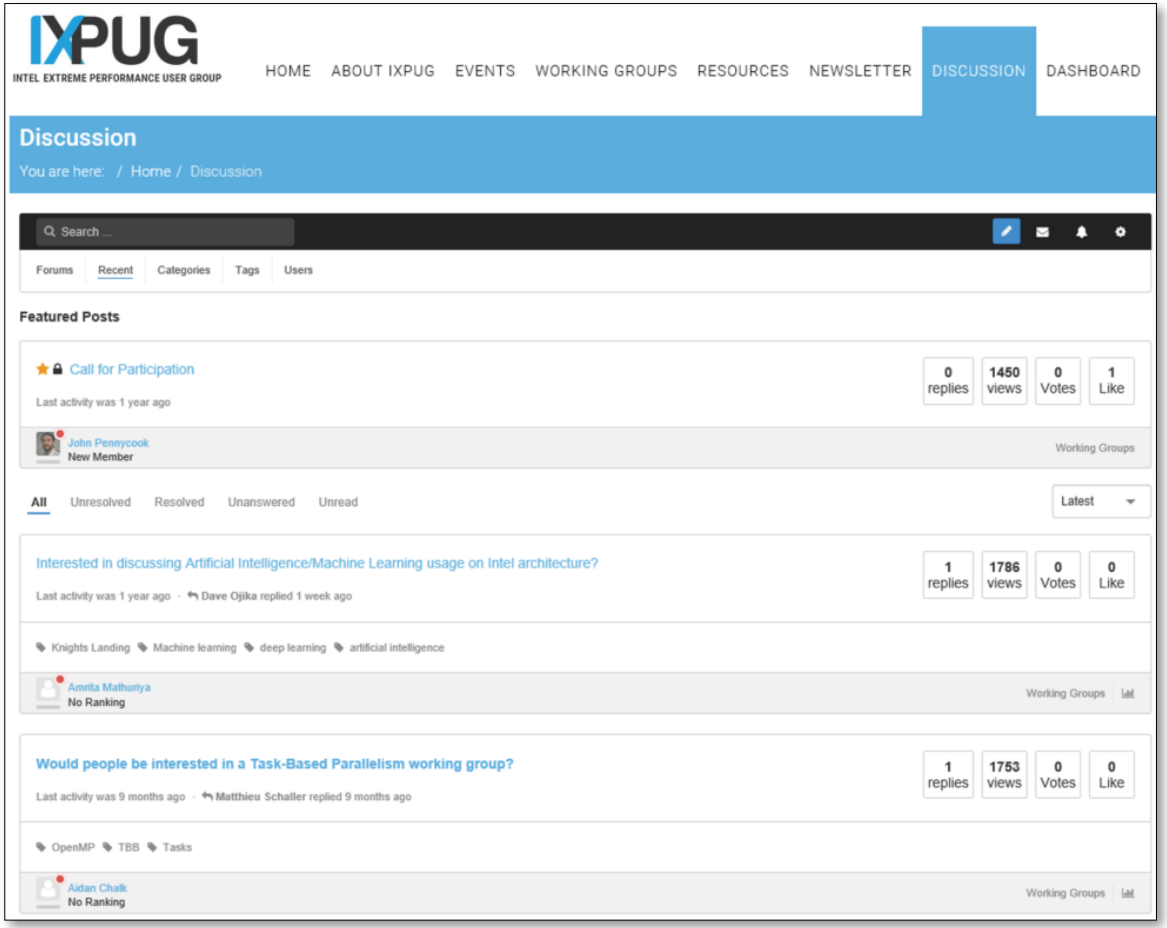
IXPUG Discussion Forums

Focused on building a community that supports open discussions that address questions, technique suggestions, etc. on general purpose Intel architecture using open standards

- Start a discussion thread
- Share your learnings and experiences
- Encourage others to join
- Visit https://www.ixpug.org/discussion



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IXPUG Leadership Board

President: David Martin, Argonne National Laboratory

Vice President: Estela Suarez, Jülich Supercomputing Centre

Secretary: Melyssa Fratkin, Texas Advanced Computing Center

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VSB - Technical University of Ostrava

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Shanghai Jiao Tong University

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How to Get Involved

Join, Engage and Share:

- Connect with us on Twitter **@IXPUG1**
- Become a member and encourage others to join, by registering at www.ixpug.org
- Contribute by sharing your learnings and experiences in using Intel architecture
- Attend an IXPUG Conferences, Workshops, Birds-of-Feather, ~monthly Working Group, etc. meeting
- Post a question, share a technique, best practices, etc. on the “Discussion” board at https://www.ixpug.org/discussion

Additional Opportunities:

- Join the IXPUG Steering Committee
- Volunteer as a “Reviewer” for any upcoming “call for abstracts”, by sending an email to info@ixpug.org