PRESS RELEASE

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EMVA and Khronos Issue Call for Participation

for New Camera API Working Group

Strong industry consensus to develop an open, cross-vendor API standard for portable control over camera systems in multiple markets

Barcelona, Spain / Beaverton, OR, USA; 20 January, 2022. The European Machine Vision Association (EMVA), the leading European industry association dedicated to vision technology, announces the formation of a new Working Group together with the Khronos® Group, an open consortium of industry-leading companies creating advanced interoperability standards, to develop an open, royalty-free API standard for controlling camera system runtimes in embedded, mobile, industrial, XR, automotive, and scientific markets. The Working Group will be hosted by the Khronos Group and is the result of an EMVA/Khronos-hosted Exploratory Group, held in 2021, during which over 70 companies participated to develop a Scope of Work document that will guide the direction of the API design. Design work of the Working Group is expected to start in February 2022, and any organization is invited to join to participate.

The background to form this Working Group is that cameras are increasingly critical in diverse industries, motivating the development of increasingly sophisticated optical systems,

image sensors and vision processors often utilizing machine learning technology. However, the lack of interoperable camera API standards increases application development time and maintenance costs while reducing portability and opportunity for code reuse, resulting in unnecessarily high integration costs for camera technologies. The new Camera API will be designed to provide applications, libraries and frameworks low-level, explicit control over camera runtimes, with a low-level of abstraction that still provides application portability over a wide variety of camera systems with effective, performant control to generate streams of data for consumption by downstream applications and clients.

“The close and productive collaboration between the EMVA and Khronos has been very effective in enabling broader industry participation and diversity of perspectives at the Embedded Camera Exploratory Group than either organization could have achieved working alone,” said Chris Yates, EMVA president. “EMVA will continue our collaboration with Khronos under a new liaison agreement to ensure that the interests of both the EMVA membership and the wider industry are represented at the new Camera API working group.”

“The Embedded Camera API Exploratory Group followed the Khronos New Initiative Process with invaluable cooperation from the EMVA. Over seventy companies worked together from March to December 2021 to forge strong industry consensus on the need, terminology, scope, requirements and design methodology for a new open standard camera system API,” said Neil Trevett, Khronos president. “Now, we warmly invite any interested companies, vendors and developers to bring their voice and their expertise to the design phase of this important work.”

The Camera API Working Group will start meetings in February 2022 and is expected to be of particular interest to sensor or camera manufacturers, silicon vendors, and software developers working on vision and sensor processing. Any organization is welcome to join Khronos and participate in this global initiative under the consortium’s multi-company

governance process. More details can be found on the Khronos membership page or through contacting Khronos Membership Services.

Industry Support for the Camera API Working

Over 70 companies participated in the Camera Exploratory group and the following companies support establishing the Camera API Working Group: Adimec, Almalence Inc., Analog Devices Inc., Basler AG, Baumer Optronic GmbH, Cadence Design Systems, Inc., Collabora, Digica, Digital Air Technologies, Euresys, European Machine Vision Association, FLIR Integrated Imaging Solutions, Google, Groget, Holochip Corporation, Ideas on Board Oy, LunarG, Inc., MATRIX VISION, MM Solutions, MVTec Software GmbH, NVIDIA, Perey Research & Consulting, Phil-Vision, Pleora Technologies, Raspberry PI Ltd, STEMMER IMAGING, Texas Instruments, VeriSilicon, Vision Components.

<Quotes from any Khronos, EMVA and Exploratory Group Members>

“The generic camera API will help Adimec to focus on our mission to deliver the right image in the right place at the right time, so our customers can focus on their imaging tasks. That is what we call ‘Excellence in Imaging’,” **- The Adimec Team.**

"Lack of API standards for advanced use of embedded cameras and sensors is an impediment to industry growth, collaboration and innovation. Enterprise AR customers and systems integrators/value added providers will benefit from greater clarity, open interfaces between modular systems and innovation in the component provider ecosystem. This Khronos standard for camera and sensor control will increase opportunities for powerful new combinations of sensor and AR compute resources, integration with existing IT, and lower cost and complexity of future solutions," **Christine Perey, interoperability and standards program leader for the Augmented Reality for Enterprise Alliance (AREA).**

"Open interface standards such as GenICam or GigE Vision have been a key element to establish a professional Machine Vision Market. Only by such standards we can ensure the interoperability of products from different vendors. It helped to shorten the development cycles of customers dramatically and also yields in a faster growing market. Therefore we strongly support the new open standard camera API initiative driven by Khronos and the EMVA," **Arndt Bake, CDO, Basler AG.**

"Over the past two decades, digital cameras used in embedded applications have changed dramatically. As video capture quality and processing power have increased, so has the potential for enhanced features which were unimaginable in early camera phones. The proliferation of features has resulted in a corresponding plethora of software support. The Embedded Camera Exploratory Group has laid the foundations for a consistent and extensible API to resolve this complexity; Digica is pleased to have contributed to this project and welcomes the development of the API under the new Working Group," **Jim Carroll, CTO, Digica.**

"Due to high fragmentation and lack of standardization, the embedded camera space is subject to painful interoperability issues. Adding camera support in a product is complex and expensive, most often subject to vendor lock-in, when not practically impossible for small actors. Ideas on Board launched the libcamera project three years ago to address these issues in the Linux mobile, embedded and desktop ecosystems. We have contributed our experience to the Khronos Camera Exploratory Group, and are looking forward to continuing collaboration with the industry on a new open standard camera API," said **Laurent Pinchart, CEO, Ideas on Board, and lead architect of the libcamera® project.**

"Cameras are everywhere and in everything, the market and applications have exploded in the last ten years. But a cohesive set of standard APIs has been slow to emerge making incompatibility challenging. Khronos, in conjunction with the European Machine Vision Association, is going to correct that and has formed this Working Group to develop an open

API for cameras. This will be welcome news to industry participants and users alike," said **Jon Peddie, president, Jon Peddie Research**.

“Existing standards, like GigE Vision and USB3 Vision, have proven that a standardization of software interfaces is beneficial for manufacturers and users. We believe that, in the rapidly changing world, Embedded Vision is significantly shaping the future of machine vision. A complementary standard for the embedded camera API is therefore important, and it makes camera control more reliable, hardware selection more flexible and shortens users' time-to-market,” said **Tilman Sanitz, head of embedded systems, Matrix Vision.**

"A widely supported open standard camera API will spur innovation and reduce integration costs in multiple markets that use advanced sensors. NVIDIA has supported the work of the Exploratory Group and is committed to participating in the design work at this new Camera Working Group," **Sean Pieper, director of imaging software, NVIDIA.**

“With the strong growth of camera applications in automotive, IoT, AR/VR devices, wearables and smartphones, there has been a strong demand for a standardized camera API in the industry. The standardized camera API that the Khronos group is working on will help facilitate the deployment of new cameras by reducing porting efforts, simplifying the procedures of camera upgrades, and improving the interoperability among various camera devices. This camera API standardization effort is very meaningful and will be highly influential to the related industry. We would like to see this standard API to be deployed soon,” said **Weijin Dai, EVP, VeriSilicon.**

About EMVA

The European Machine Vision Association (EMVA) is a non-for-profit and non-commercial association representing the Machine Vision industry in Europe that is open for all types of organizations having a stake in machine vision, computer vision, embedded vision or imaging technologies: manufacturers, system and

machine builders, integrators, distributors, consultancies, research organizations and academia. The EMVA hosts four international vision standards, and all members – as the 100% owners of the association – benefit from the dedicated networking, standardization, and cooperation activities of the EMVA. www.emva.org.

About Khronos

The Khronos Group is an open, non-profit, member-driven consortium of over 180 industry-leading companies creating advanced, royalty-free, interoperability standards for 3D graphics, augmented and virtual reality, parallel programming, vision acceleration and machine learning. Khronos activities include 3D Commerce™, ANARI™, glTF™, NNEF™, OpenCL™, OpenGL®, OpenGL® ES, OpenVG™, OpenVX™, OpenXR™, SPIR-V™, SYCL™, Vulkan®, and WebGL™. Khronos members drive the development and evolution of Khronos specifications and are able to accelerate the delivery of cutting-edge platforms and applications through early access to specification drafts and conformance tests. www.khronos.org.

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