

12th FPGA workshop | Monday, 14 October 2019

Welcome to Hungary

Gyula Mate Mach,
Project supervisor

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The country

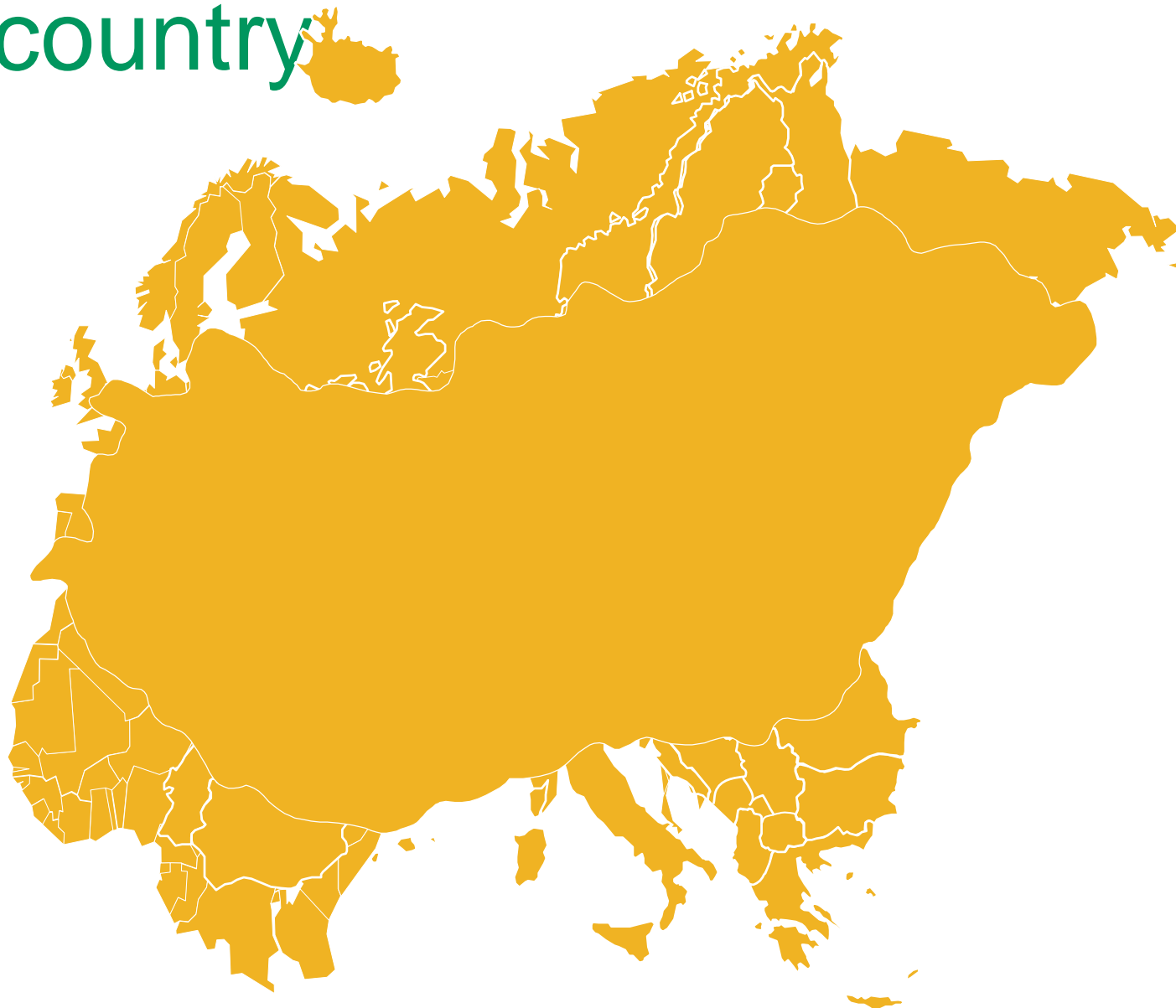
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The country



About the country

- Hungary, in Hungarian: Magyarország ['mɒɟɒrorsaːɡ] is a country in Central Europe
- Spanning 93,030 square kilometers (35,920 sq mi) in the Carpathian Basin
- Hungary's population was 9,937,628 was in 2011
- 13 million speakers of Hungarian
- Hungarian is one of 5 Most Difficult Languages in the World to Learn (Japanese, Mandarin, Hungarian, Finnish, Arabic, Polish)
- Hungary's capital and largest city is Budapest

The origin of the country

- Hungary was established in 895 by the tribes
- In 1001 applying to Pope Sylvester II, Stephen received the insignia of royalty (including a part of the Holy Crown of Hungary, currently kept in the Hungarian Parliament) from the papacy

Memberships

- United Nations since 1955
- IAEA since 1957
- World Bank since 1982
- Council of Europe since 1990
- Visegrád Group since 1991
- WTO since 1995
- NATO since 1999
- EU since 2004
- Schengen Area since 2007

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Hungarian Nobel prize owners

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Nobels (13)

- Philipp E. A. von Lenard (1862-1947) 1905 Physics
- Robert Bárány (1876-1936) 1914 Medicine
- Richard A. Zsigmondy (1865-1929) 1925 Chemistry
- Albert von Szent-Györgyi (1893-1986) 1937 Medicine
- George de Hevesy (1885-1966) 1943 Chemistry
- Georg von Békésy (1899-1972) 1961 Medicine
- Eugene P. Wigner (1902-1995) 1963 Physics
- Dennis Gabor (1900-1979) 1971 Physics
- John C. Polanyi (1930-) 1986 Chemistry
- George A. Olah (1927-) 1994 Chemistry
- John C. Harsanyi (1920-2000) 1994 Economics
- Imre Kertész (1929-) 2002 Literature
- Avram Hershko (1937-) 2004 Chemistry

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Hungarian Inventors

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EVERYDAY ITEMS

- Rubik's Cube by Ernő Rubik
- the ballpoint pen by László Bíró in 1938
- Soda water machine by Ányos Jedlik
- Binoculars and opera glasses among other things by Joseph Petzval
- The safety match by János Irinyi
- Vitamin C was discovered by Albert Szent-Györgyi
- The tungsten lamp was created by the work of Hungarians, Sándor Just and Imre Bródy

AUTO AND ELECTRIC

- The carburettor by Donát Bánki and János Csonka
- The first helicopter invented in 1928 by Oszkár Asbóth
- Designing the three-phase motor and generator needed for electric railways Kálmán Kandó who is known as 'the father of the electric train' for his work.
- The inventor of soda water, Ányos Jedlik, also invented an early electric motor and car way back in 1828.
- The Ford T Model car was designed by Hungarian-American immigrant József Galamb. In 1913 he was also a co-developer of the assembly line.
- The prolific inventor, Béla Barényi, is – among many things -responsible for the basic design of the Volkswagen Beetle. In fact his marvellous inventiveness means he has more than 2000 patents to his name and his contributions to car safety are significant.
- Co-inventors of the modern electric transformer are Ottó Bláthy, Miksa Déri and Károly Zipernowsky.
- Ottó Bláthy also invented the AC watt meter and turbo generator.

IT AND COMMUNICATIONS

- Tivadar Puskás invented the telephone exchange in 1877
- János von Neumann was the conceptual inventor behind digital computing
- Peter Károly Goldmark invented colour TV in about 1940
- 1936 Kálmán Tihanyi described the principle behind the first plasma TV and flat-panel TV
- The high level programming language known as BASIC was co-invented in 1964 by János Kemény
- Károly Simonyi started and headed the Microsoft applications group that was responsible for the hugely popular programs Word and Excel
- Edward Teller (Teller Ede in Hungarian) invented the hydrogen bomb in the 1950s and had a role in creating the atomic bomb as a member of the Manhattan Project
- Leo Szilárd also had a role in creating the atomic bomb as part of the Manhattan Project, and Leo conceived the idea of the nuclear chain reaction and co-invented the nuclear reactor
- Dénes Gábor invented holography – the process of creating 3D images

RECENT INNOVATION

- Prezi is a cloud based presentation and storytelling software invented in 2009 by co-founders Adam Somlai-Fischer, Peter Halacsy and Peter Arvai
- Leonar3Do, invented by Daniel Rátai, is a combined hardware and software platform that can create a 3D virtual reality environment
- In 2014 Áron Losonczi patented LiTraCon a light transmitting concrete that is a mix of concrete and optical glass fibres. It is a building material that is basically as strong as concrete but allows light to pass through
- The gomboc is a funny little creation by Gábor Domokos and Péter Várkonyi. It's a mono-monostatic object that can self-right from any position
- Recently Hungarians also invented a biometric technology palm scanner that identifies a person based on five million palm vein data points

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Welcome to Budapest

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About Budapest

- 7,626 square kilometres
- 3,303,786 people
- The history of Budapest began when an early Celtic settlement transformed into the Roman town of Aquincum
- After the reconquest of Buda in 1686, the region entered a new age of prosperity. Pest-Buda became a global city with the unification of Buda, Óbuda, and Pest on 17 November 1873, with the name 'Budapest' given to the new capital

Should to visit in Budapest

- Museum of Fine Arts
 - Hungarian National Museum
 - House of Terror,
 - Franz Liszt Academy of Music
 - Hungarian State Opera House
 - National Széchényi Library
 - The central area of the city along the Danube River is classified as a UNESCO World Heritage Site
- Hungarian Parliament (third largest Parliament building in the world)
 - Buda Castle
 - Fisherman's Bastion
 - Gresham Palace
 - Széchenyi Chain Bridge
 - Matthias Church
 - Liberty Statue

Should to visit in Budapest

- Andrásy Avenue
- St. Stephen's Basilica
- Heroes' Square
- Great Market Hall
- Nyugati Railway Station built by the Eiffel Company of Paris in 1877
- The second-oldest metro line in the world, the Millennium Underground Railway
- The city also has around 80 geothermal springs
- The largest thermal water cave system in the world
- The second largest synagogue in the world

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Nuclear Industry

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Nuclear facilities in Hungary

- HUNGARIAN ACADEMY OF SCIENCES CENTRE FOR ENERGY RESEARCH
- The Institute of Nuclear Techniques (NTI) of the Budapest University of Technology and Economics (BME)
- Public Limited Company for Radioactive Waste Management (RHK Kft.)
- **MVM Paks NPP Ltd.**

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Paks

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About the city of Paks

- Paks is a small town in Tolna county, central Hungary, on the right bank of the Danube River, 100 km south of Budapest
- Paks a former agricultural settlement is now the home of the only Hungarian nuclear power plant
- ~20 000 people live in Paks
- The most known wine of Paks is the Siller

Twin towns

- Reichertshofen, Germany
- Gubin, Poland
- Galanta, Slovakia
- Târgu Secuiesc (Kézdivásárhely), Romania
- Loviisa, Finland
- Novovoronezh, Russia[2]

Nuclear power plant of Paks

- 4 PWR unit (VVER)
- 137 unit years
- Technical upgrades:
 - P>510MW each unit (originally 440MW)
 - 15 month campaign
 - Digital RPS in the 90s
- 20 years lifetime extensions approved
- Preparing 2 VVER-1200 unit (different company)

Special Thanks For

- Mr. Mark Burzynski:
 - the organizer of the workshop
 - the CEO of SunPort SA
- Dr. János Eiler:
 - IAEA Scientific Secretary
 - Unicum ambassador

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Thank you for your attention!

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