TES Electronic Solutions

guiliani

Overview 1Q23

www.guiliani.de
info@guiliani.de

TES
Electronic Solutions

Create. Design. Manufacture.

Guiliani is a TES Electronic Solutions original software product

- TES is a **Technology and Design Services Company** based in Germany with a global customer base.

- 90 employees, 90% engineers

- **Embedded software, Graphics, RF such as radar and chip design including mixed signal, FPGA**

- We Create – Design – Manufacture

- **Close Semiconductor Industry Partner** for 20 years, in all imaginable applications…

e.g. radar

e.g. FPGA designs

e.g. 3D-Surround View Software

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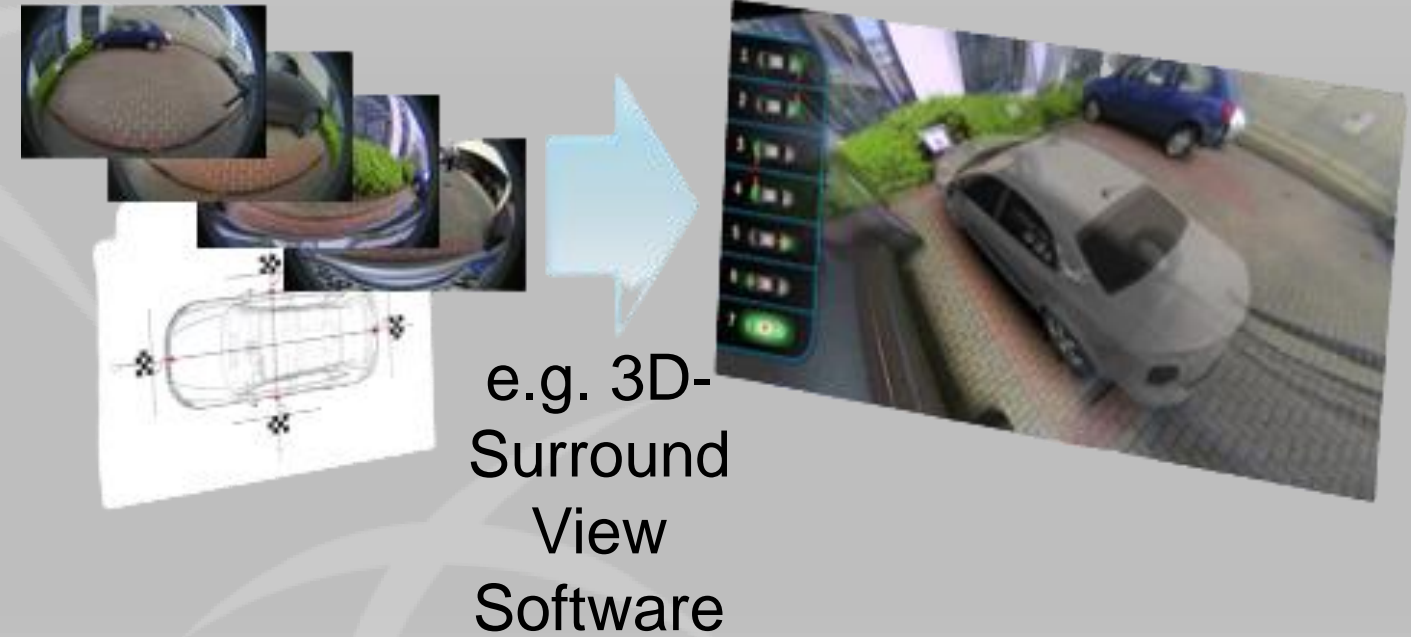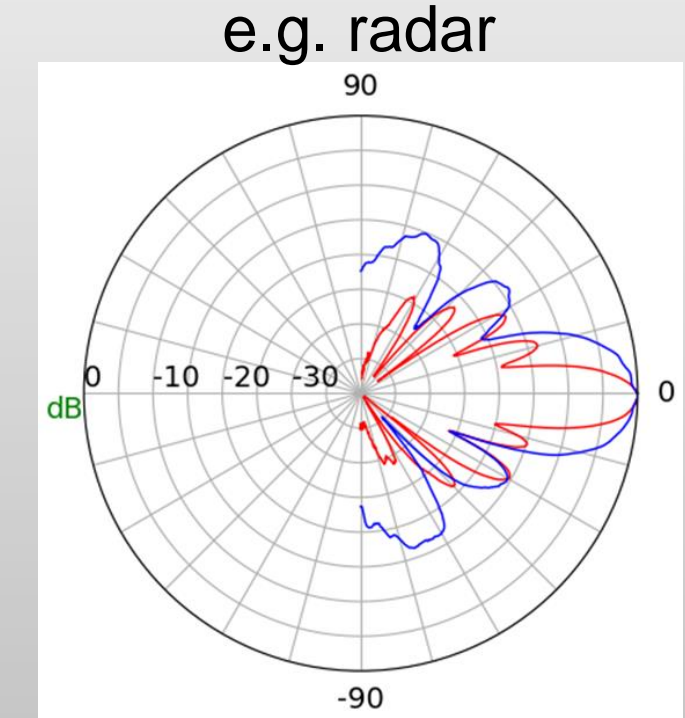
Guiliani Differentiators – Why Guiliani?

- **Guiliani is a software framework for creating stylish Graphical User Interfaces on any embedded hardware**

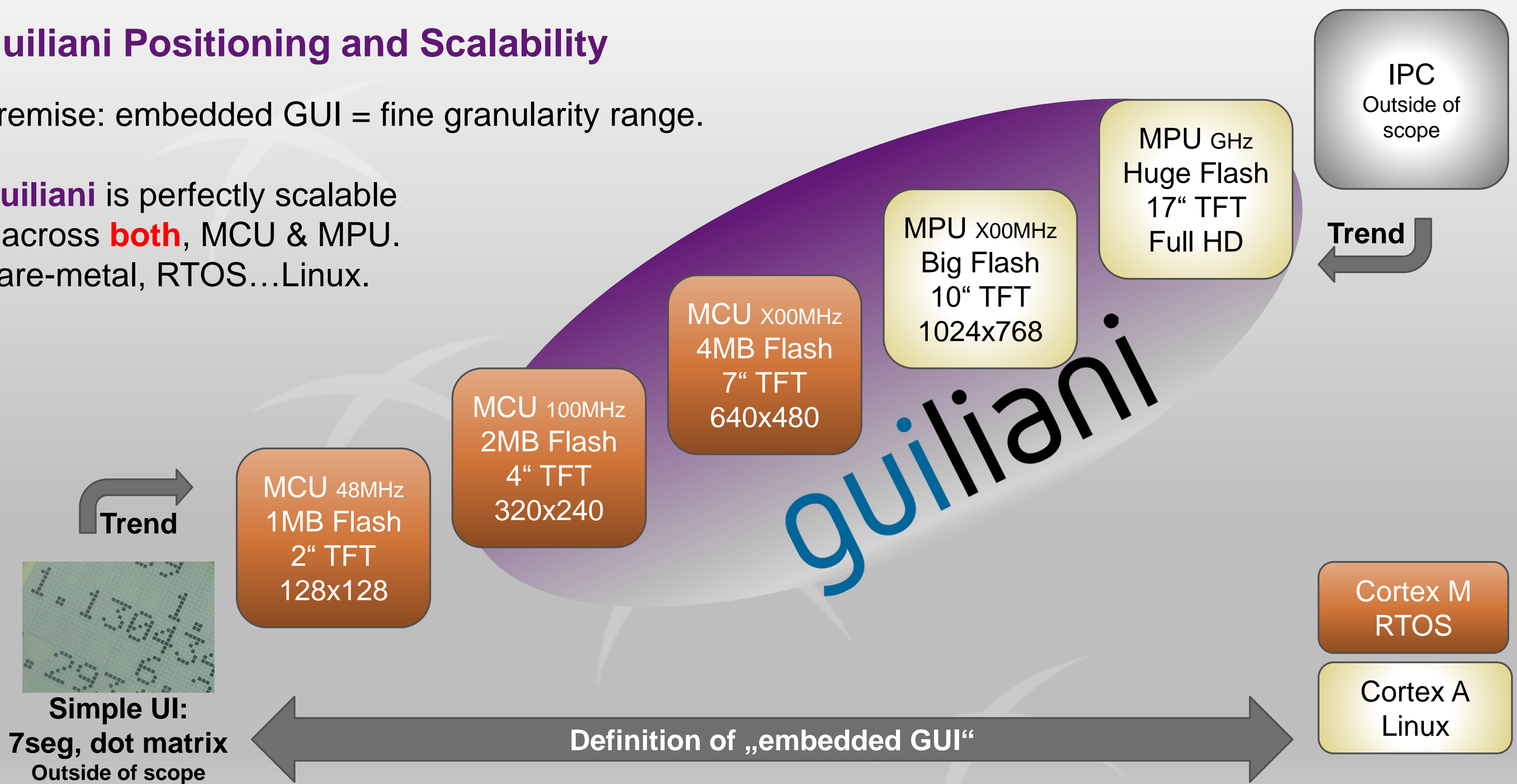- Fast, easy, professional! Time-proven in millions of embedded systems!

Top 5 reasons to choose Guiliani, based on customer testimonials	Your Benefit
Powerful, modern object-orientated C++ GUI software	Fast time to market
Intuitive WYSIWYG Guiliani Streaming Editor (GSE)	Get work done quickly
Innovative streaming of graphics assets	Supports teamwork
Scalable from MCU to MPU, from bare metal to Linux	Learn once, develop many
Best-in-class technical **support & services**	Projects on time, on budget

Flexible Business Model to meet your commercial needs as well

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Guiliani Positioning and Scalability

Premise: embedded GUI = fine granularity range.

Guiliani is perfectly scalable across **both**, MCU & MPU. Bare-metal, RTOS…Linux.

IPC
Outside of scope

Trend

MPU GHz
Huge Flash
17" TFT
Full HD

MPU X00MHz
Big Flash
10" TFT
1024x768

MCU X00MHz
4MB Flash
7" TFT
640x480

MCU 100MHz
2MB Flash
4" TFT
320x240

Trend

MCU 48MHz
1MB Flash
2" TFT
128x128

guiliani

Cortex M
RTOS

Cortex A
Linux

**Simple UI:
7seg, dot matrix**
Outside of scope

Definition of „embedded GUI"

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Guiliani Customer Voices

"This proved to be a great partnership,
as both companies <TES and Renesas> provided **solid technical support**
throughout the development"
S.F., Head of Engineering at customer L., UK

"**We are really enjoying using Guiliani:**
basic controls and behaviors are very easy to handle
with the provided example project and with only a few application code
one can do **really powerful and amazing stuff!** Simulator is also a great feature…"
X.R., R&D at customer R., France

"I am compiling my **very positive results**
for my management team."
M.S., R&D at customer M., USA
upon completion of a deep-dive evaluation
with creation of a „Proof of Concept"

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Guiliani Technologies at a glance (1)

- Modern, **object-oriented C++ framework,** easily interacts with ANSI C, of course

- The Guiliani Streaming Editor (GSE) is intuitive to use and runs on Guiliani too (!), therefore it can easily simulate your GUI on your PC even **before you have target hardware**

- Cool **animations** editing to easily create even complex animations within minutes

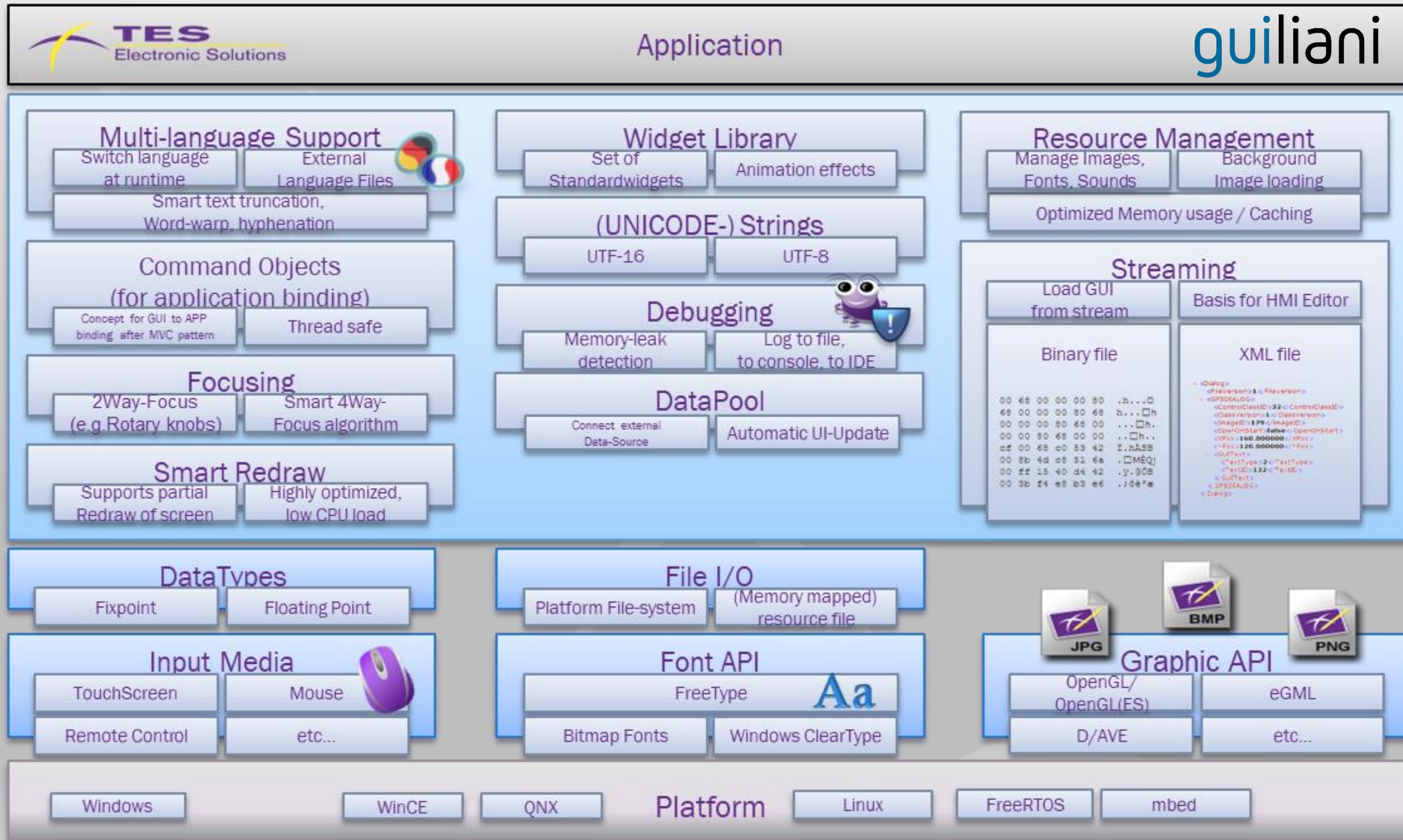- GSE available under Windows & Linux

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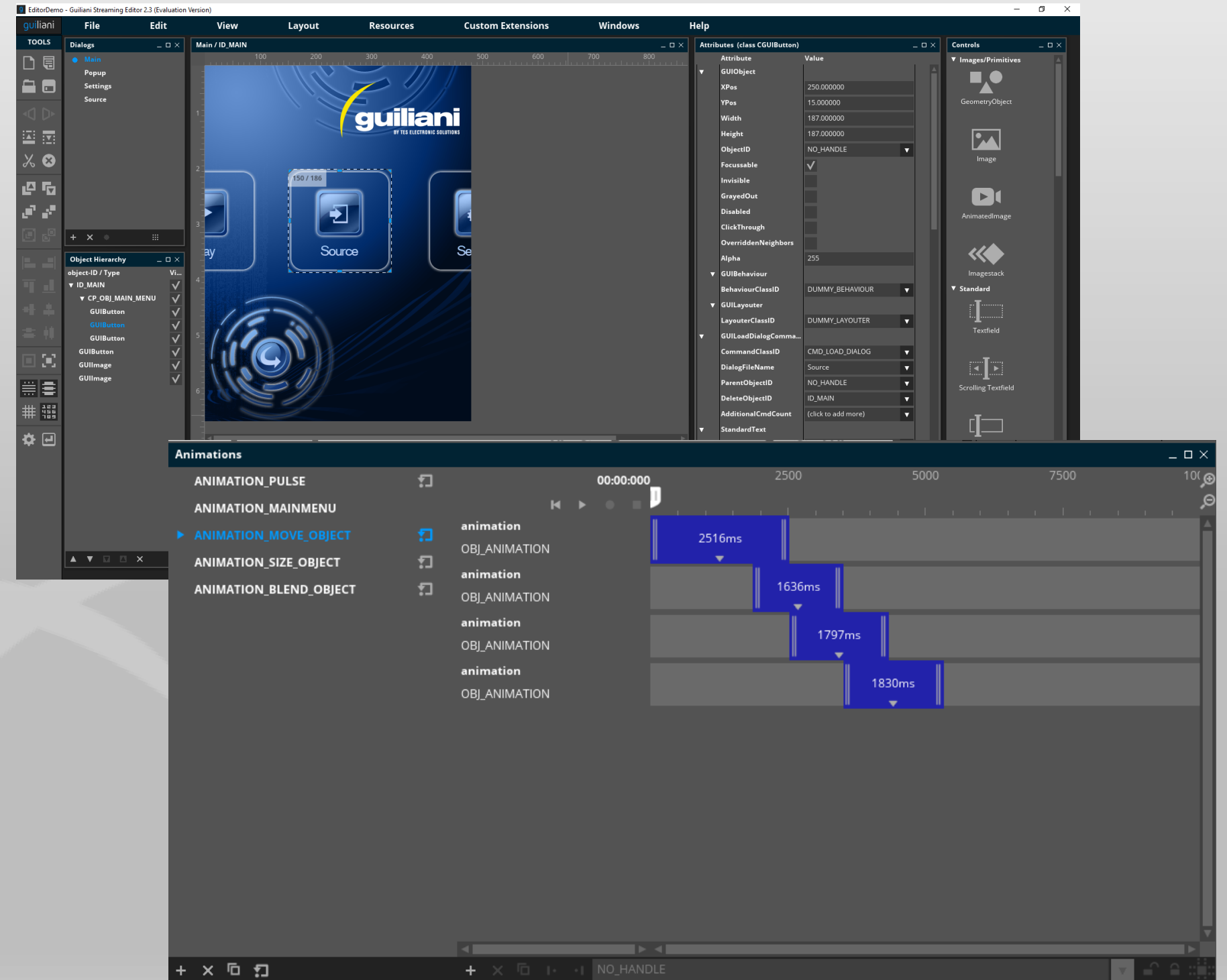
Guiliani Technologies at a glance (2)

- Modular Design = customizable, portable, efficient

- **Guiliani Streaming Engine creates the user interface at run-time using XML/binary = agile!**

- Highly optimized utilization of D/AVE GPUs, because we know every line of code in Guiliani and every single gate in D/AVE GPUs…

- **Smart, partial redraw saves performance and bandwidth**

- Performance Profiling Tools keep engineers in the know

Guiliani Technologies at a glance (3)

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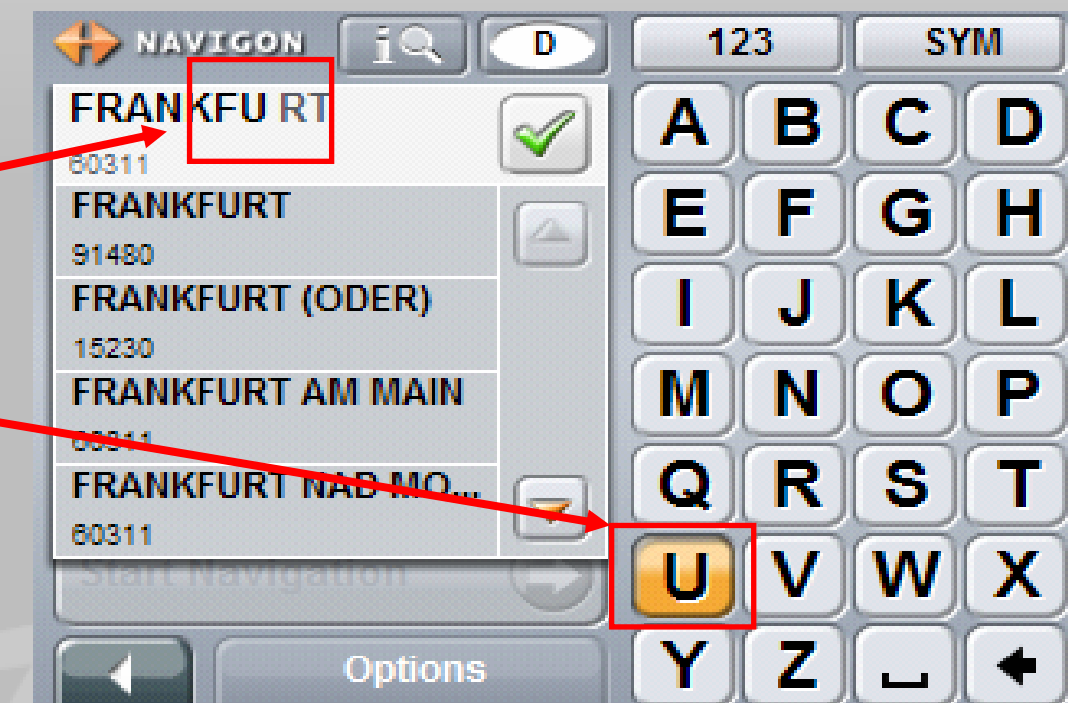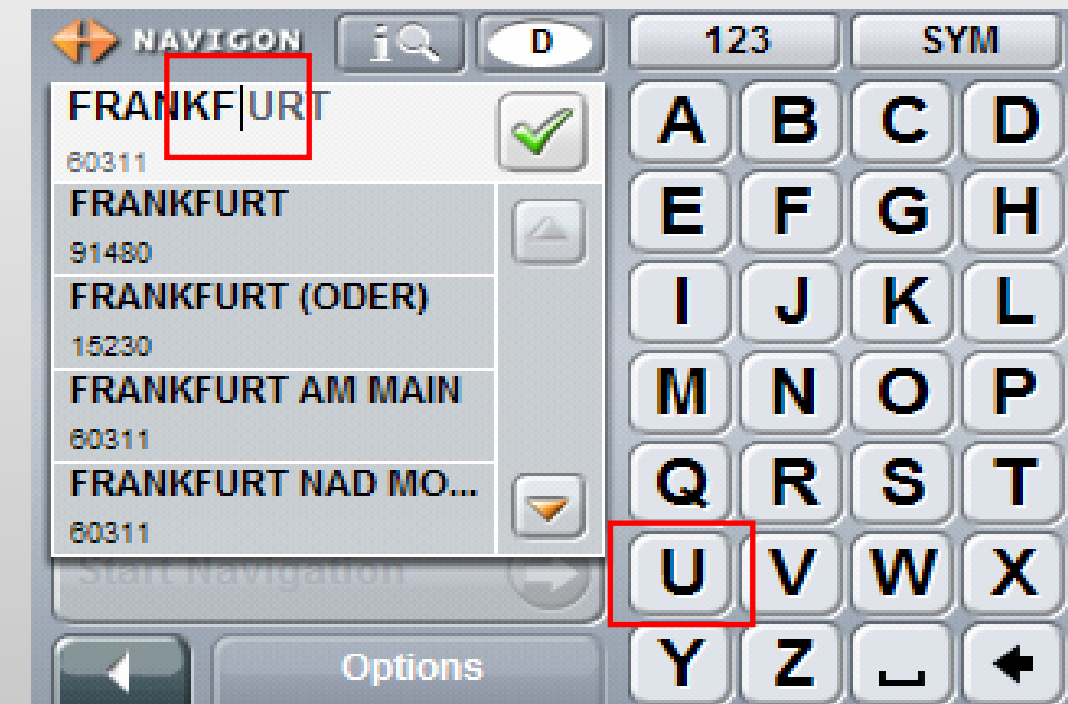
Guiliani Feature Examples (the list goes on…)

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NEW! Guiliani 2.5

New Features:

Runtime Profiling

New dialog transitions

Rotate text by 90/180/270 degrees

Improved on-screen key board

Keyboard layout editor

Target memory settings profiling

New detailed exports statistics

Many more…
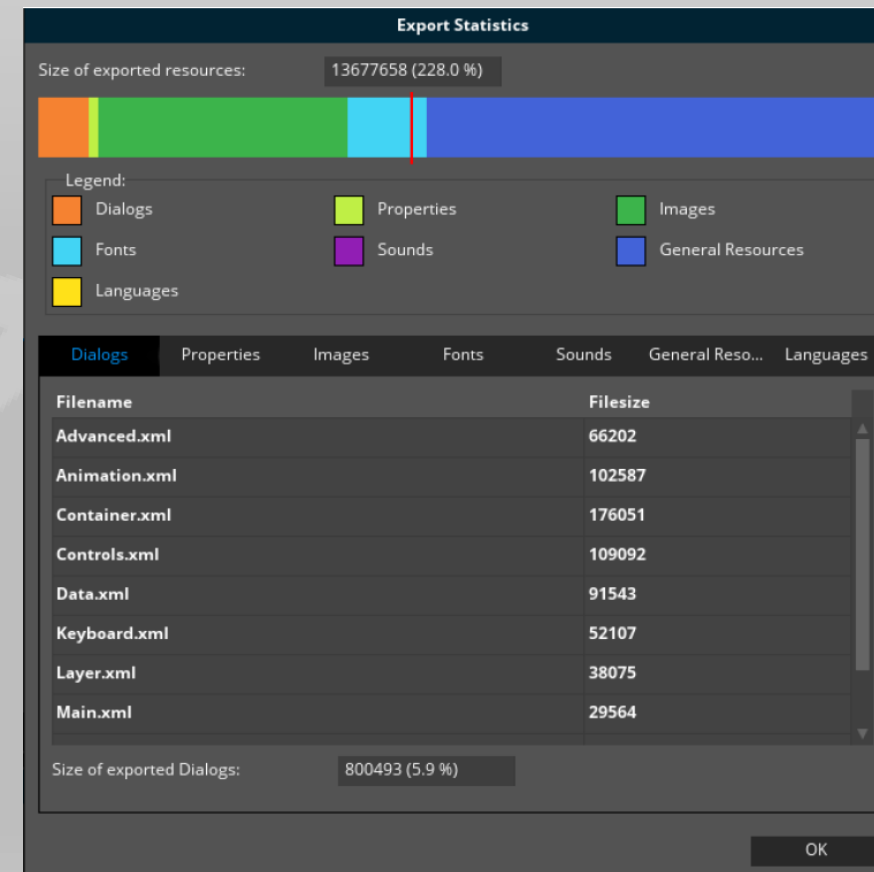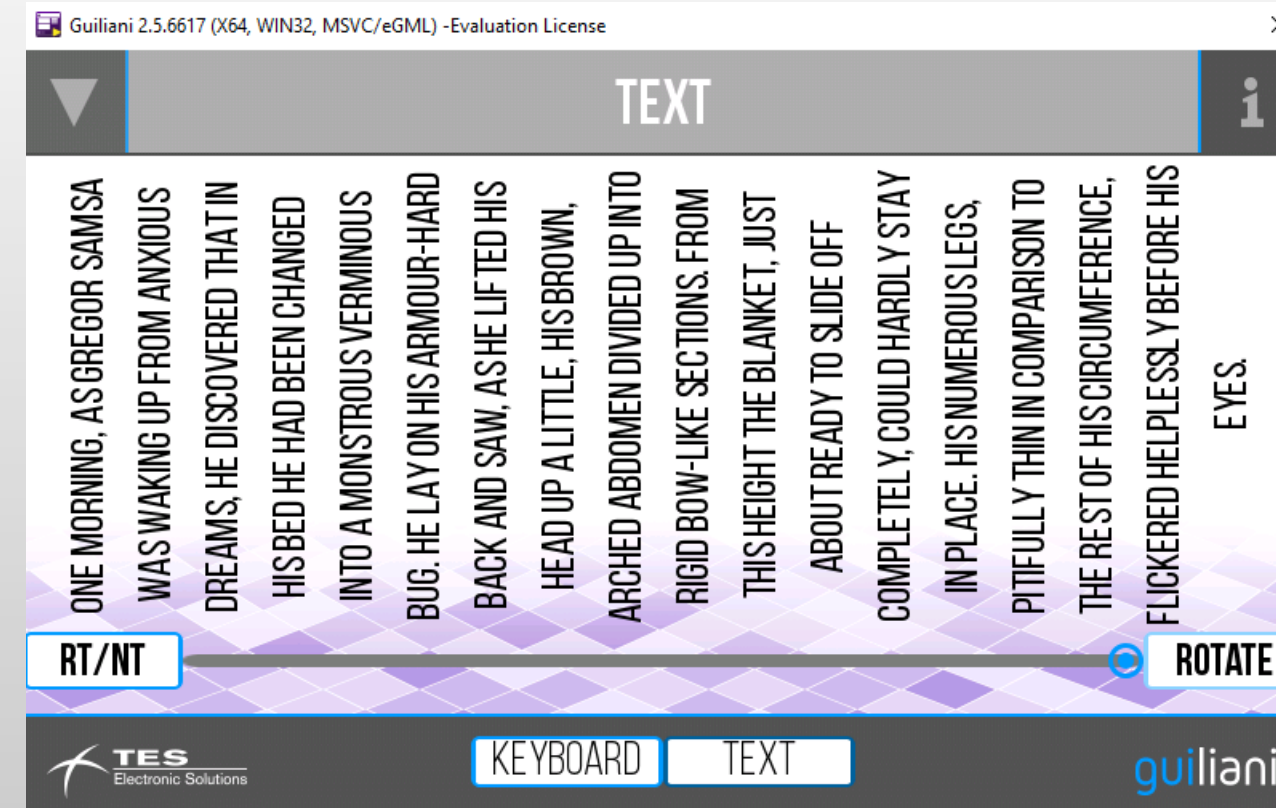
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Guiliani Target Applications

Guiliani excels in **all embedded applications** such as

Appliances

Automotive & transportation

Battery operated devices

Home & Building Automation

Industrial, Test & Measurement

Medical & Fitness

Wearables

Point of Sales (EPOS)
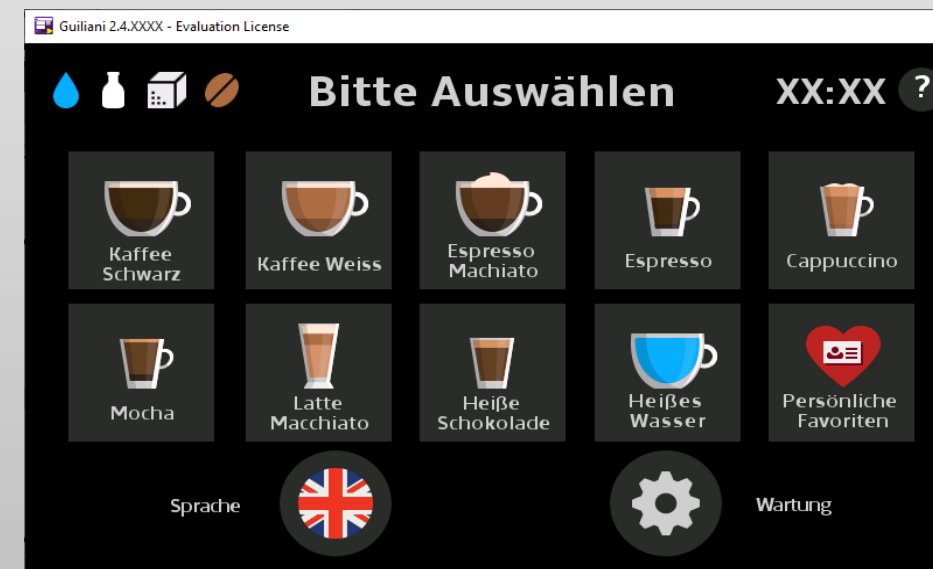
Courtesy of Lightpoint Medical
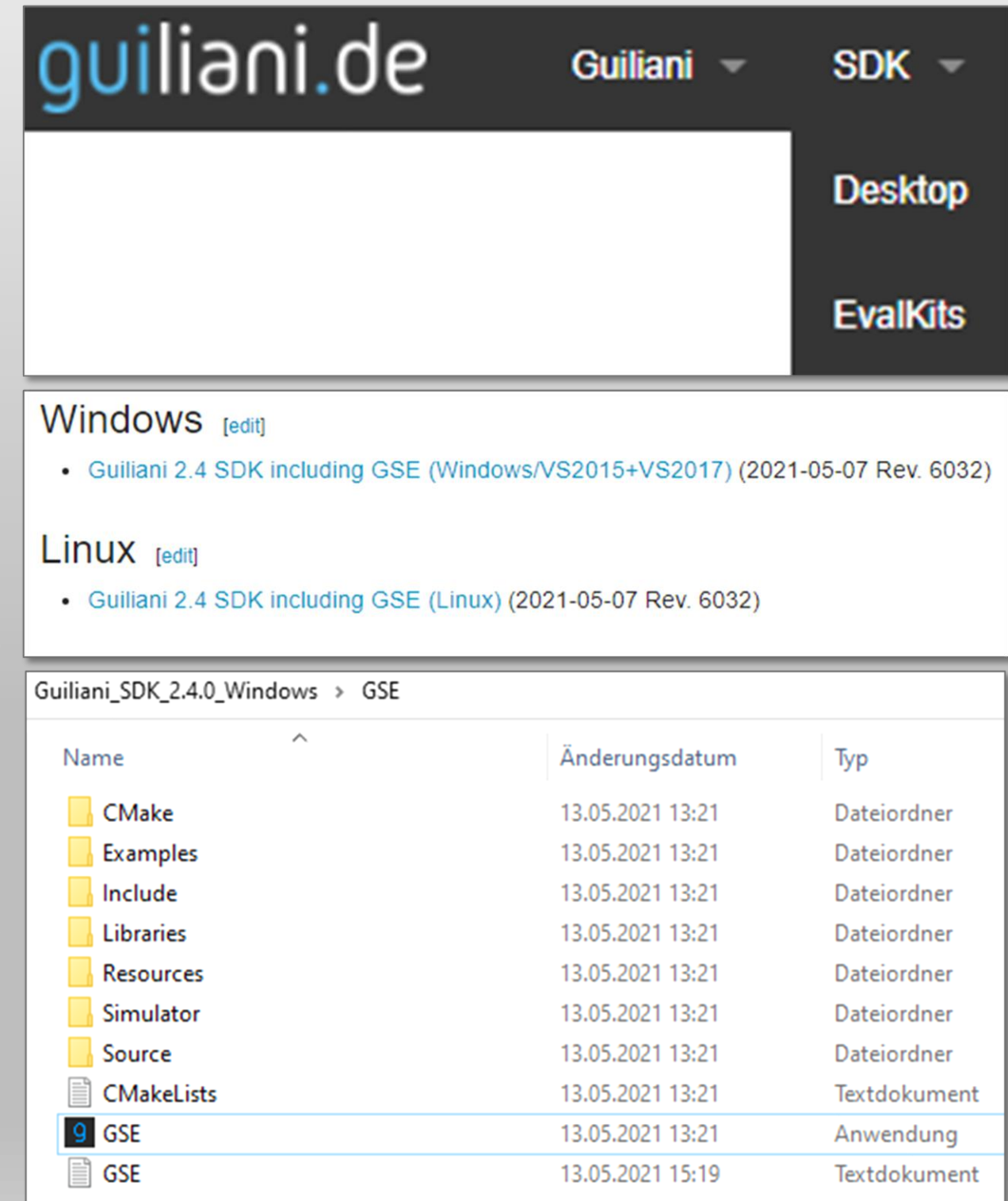
Courtesy of Medallion Instrumentation Systems

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It's easy to get your hands dirty

1. Go to www.guiliani.de

2. Choose SDK/Desktop

3. Click on the Windows or Linux Download

4. Unpack the ZIP File

5. Start gse.exe (in the gse subfolder)

et voilà!

You are sitting in front of the

Guiliani Streaming Editor (GSE) now!

Guiliani Streaming Editor (GSE)

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Guiliani = Perfect Teamwork

Mary is artist.
Uses e.g. Photoshop.
Delivers artwork by
e.g. USB stick…

Tahir is engineer.
Uses Guiliani to integrate
Mary's artwork with the inputs
from other stakeholders…

Other stakeholders, e.g. Product Management, Sales, Marketing, etc…

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Guiliani Support and Services

1. Professional Support & Maintenance

2. Engineering Support, e.g. porting to your hardware/tools/OS, application binding, performance optimizations…

3. Development of custom widgets and behaviors

4. Guiliani Trainings

5. Complete turn-key developments of products…

6. …even manufacture and supply chain management!
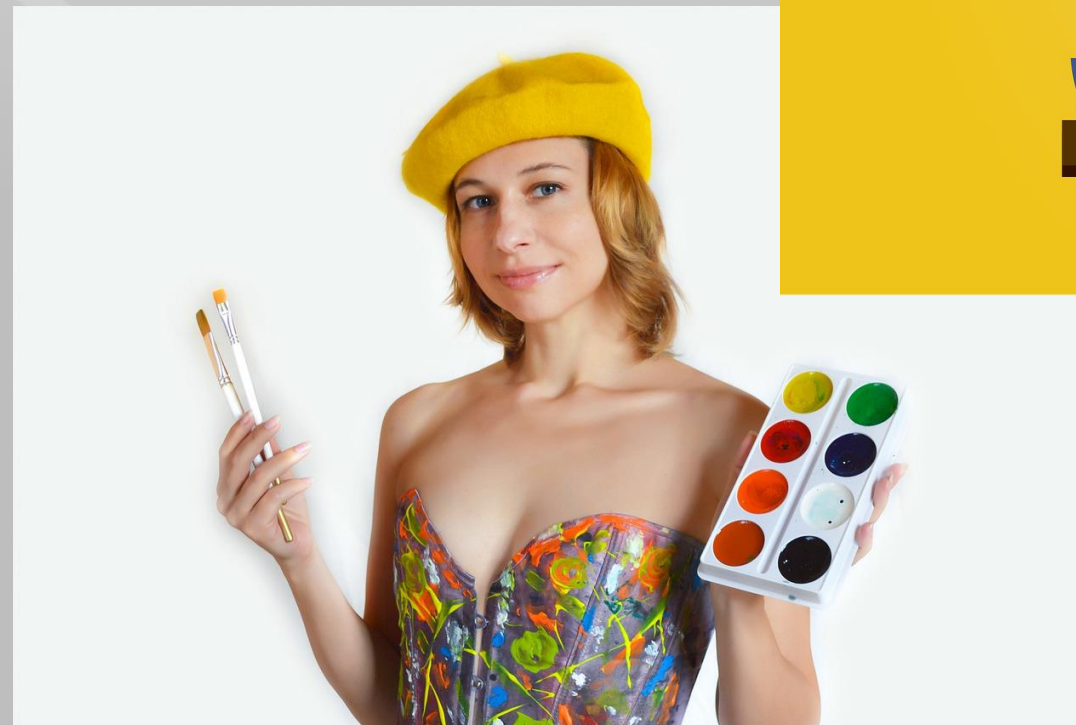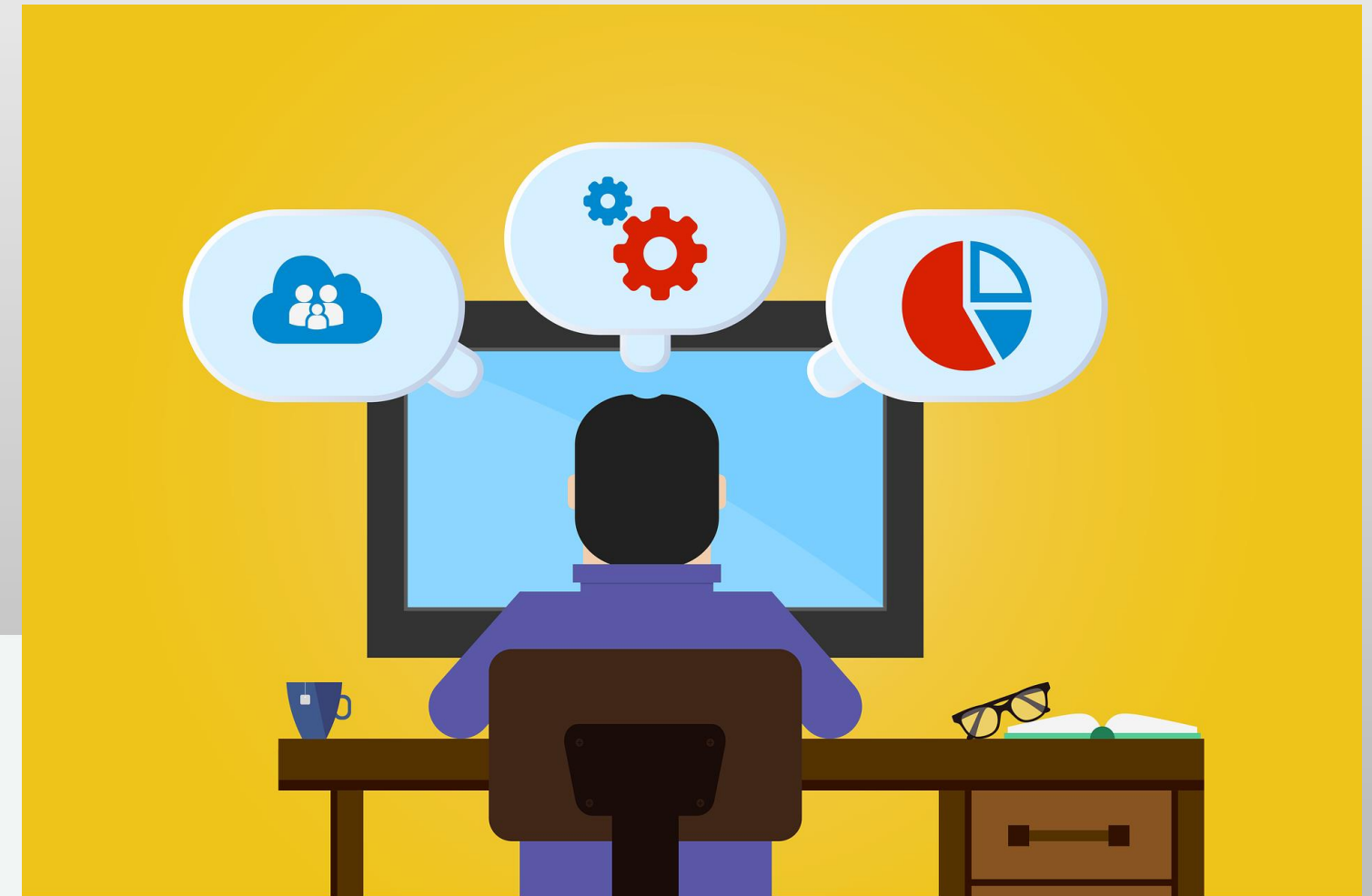
Highest customer ratings!

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TES Electronic Solutions: Your holistic graphics partner (1)

- **Graphics hard- and software = core competency**

- **We offer Hardware IP Blocks for integration into MCU/MPU and usage in FPGA designs:**
- Graphics Processing Units (GPU)s "D/AVE" family
- Configurable Display Controller (CDC)
- Configurable Video Input Controller (CVI)
- TES Warping Engine
- **Graphics Software beyond Guiliani such as..**
- 3D-Surround-View Software
- Software rendering IP

- **And any combination of the above + services!**

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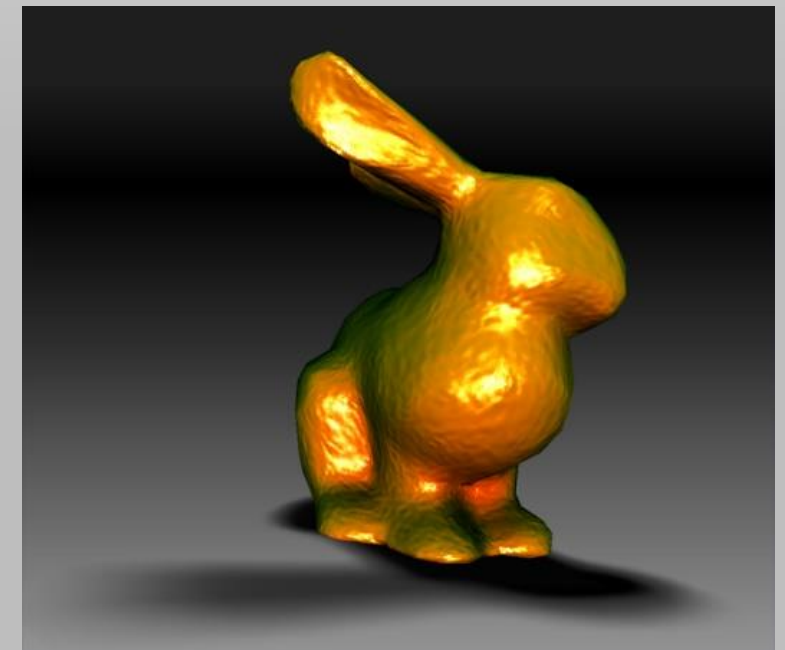
TES Electronic Solutions: Your holistic graphics partner (2)

- **HOT NOW!**

  Linux Graphics / GUI Solution Kit for FPGA

- Your quick start on an FPGA Graphics sub-system!

- Easy to install, including precompiled demos

- Low footprint: Only 5-6kAMLs required on FPGA side for D/AVE 2D GPU and CDC Display Controller, depending on feature configuration

- Includes Linux SDK with drivers, example source code

- Supported Board: Terasic D10-Nano Kit, powered by **Intel PSG Cyclone V SoC**

Complete Graphics Subsytem:
GUI-framework + GPU + Display Controller + drivers

guiliani.de

dave 2D

cdc 300

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Guiliani Partner Highlight: M13Design

1. M13Design in France design excellent MCU/MPU kits

2. The latest kit is for the Renesas RA6M3 MCU:
   M13-RA6M3-EK Kit with 4.3" 480x272 LCD
   Spec = RA6M3, 32MB QSPI Flash, 32MB SDRAM
   ethernet, USB, J-Link OB debugger, 2x PMOD,
   1x mikroBUS™ and a lot more…

3. Available! Click here

4. **Highlight:** M13Design can create YOUR derivative
   to meet your requirements quickly and at
   highly competitive cost

5. Contact: info@m13design.fr

   Short unboxing video: https://youtu.be/x02L1gAE5H4

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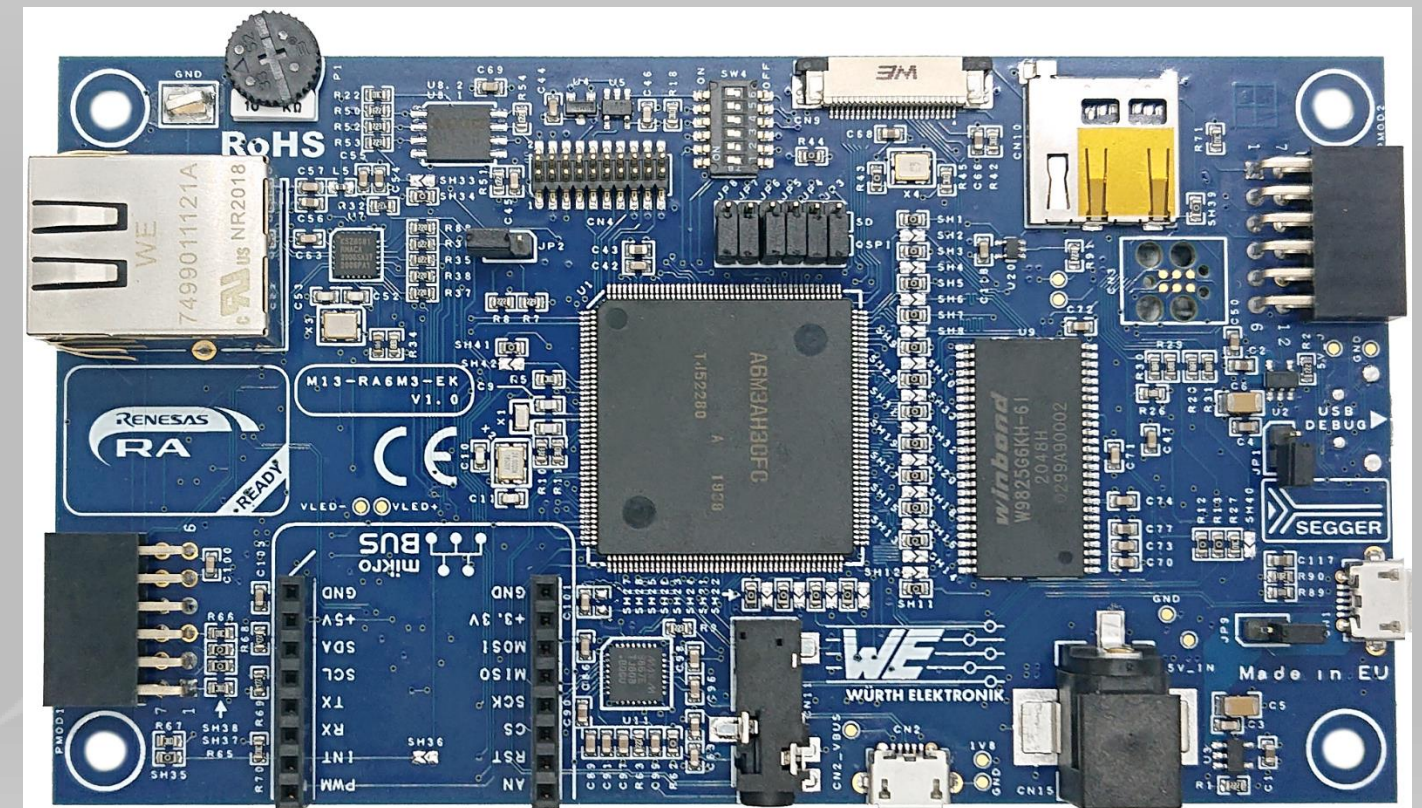
Guiliani Partner Highlight: emtrion

1. emtrion STM32MP1 Support: Available NOW!

2. **emSBC-Argon: STM32MP157-based Developer Kit with Linux**
   Dual ARM Cortex-A7 at 650MHz
   512MB SDRAM, 2MB QSPI NOR Flash,
   8GB eMMC Flash, Lots of connectivity

3. www.emtrion.com

4. **Highlight:** emSBC-Argon available in volume off the shelf for super-rapid prototyping!

5. Contact: sales@emtrion.de

Short video impression: https://youtu.be/wMBXPtKBnoU

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Guiliani Partner Highlight: Renesas RZ/G2L

1. High performance MPU!
   Dual core Cortex A55 at 1.2GHz

2. **SMARC v2.1 Module + Carrier**
   2GB DDR4 + 64GB eMMC + micro-SD
   Lots of connectivity such as 2x gigabit
   ether, 2x USB, micro HDMI, MIPI CSI
   for camera and so on…

3. Civil Infrastructure Platform SLTS Linux!
   Secure Middleware, Multimedia.
   And of course Guiliani!
   Available NOW on www.guiliani.de

4. Contact: info@guiliani.de

Short video impression: https://youtu.be/1Ia6NwArABY

RZ/G2L SMARC v2.1 Module board + Carrier Board
(Made by Renesas Europe)

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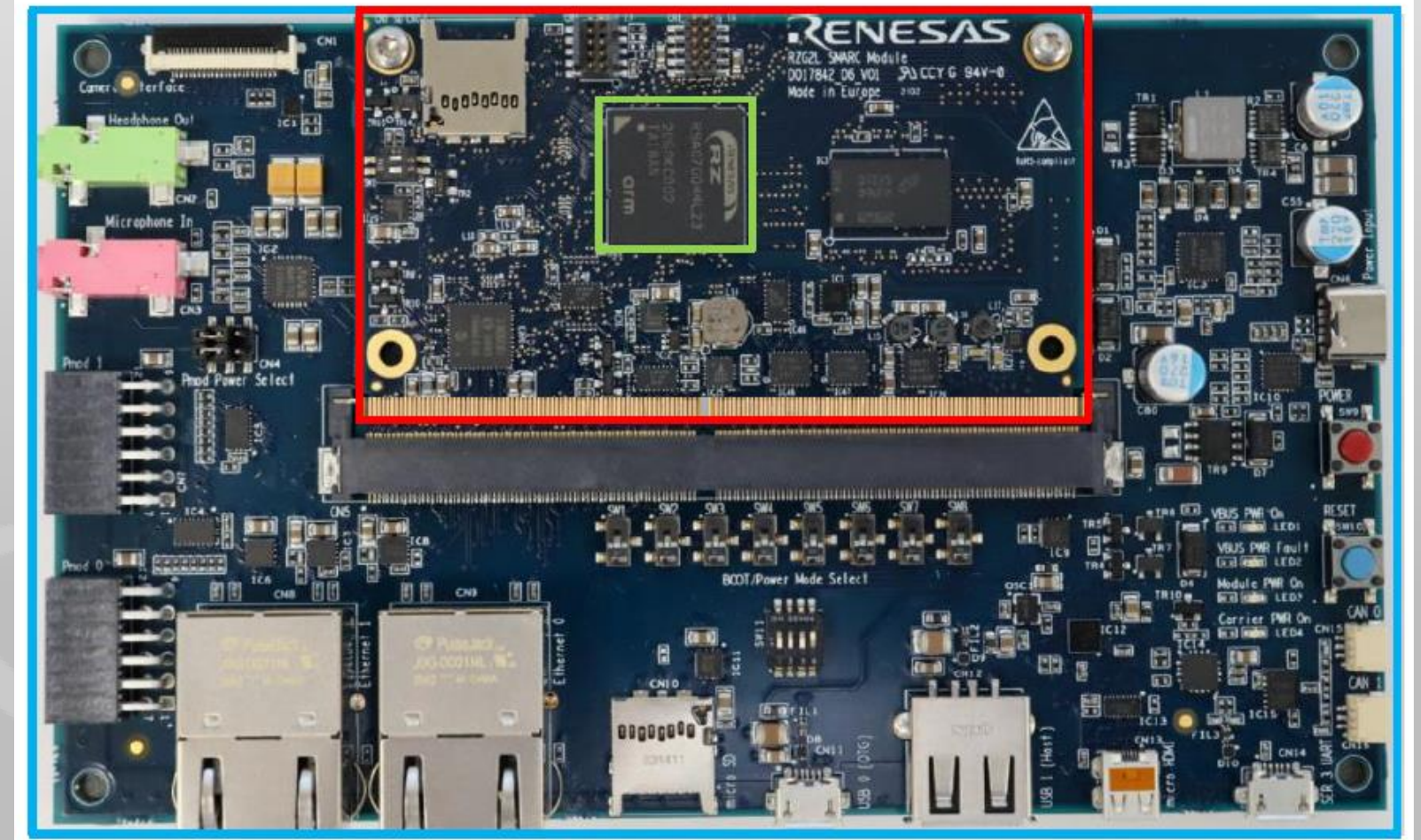
New 1Q23 Guiliani Partner Highlight: NEW RZ/A3UL

1. Low cost MPU Augments RZ/A family upwards

2. **Quick boot by virtue of RTOS focus!**

3. **Guiliani 2.5 SDK available now!**

4. Beta Customers Wanted Now!
Contact:
info@guiliani.de

System
- Arm Debugger (CoreSight)
- 16 ch DMAC
- Interrupt Controller
- PLL/SSCG
- Standby (Sleep/Module)

CPU
- Cortex-A55
  - 1.0GHz
  - NEON/VFP
  - I-L1$: 32KB w/Parity
  - D-L1$: 32KB w/ECC
  - L2$: 0KB
- L3$(Shared) : 256KB w/ECC

Memory
- RAM128KB w/ECC

LCD Controller + Resize
- Image Scaling Unit
- Display Out (Parallel-IF*)
- Camera In (MIPI-CSI2 4lane)

Timers
- 1 x 32bit MTU3*
- 8 x 16bit MTU3*
- 2 x WDT*

Analog
- 2 x 12bit ADC

Audio
- 4 x SSI (I²S)*

Interfaces
- DDR4/DDR3L (In line ECC) 16bit x 1.6/1.3Gbps
- SPI Multi I/O or Octa IF (4/8bit x 200Mbps)
- 1 x SDHI (UHS-I)/MMC
- 1 x SDHI (UHS-I)
- 1 x USB2.0 Host
- 1 x USB2.0 Host / Function
- 2 x 100/1000Mbps Ether MAC*
- 3 x I2C*
- 2 x SCI 8/9bit*
- 5 x SCIF (UART)*
- 3 x RSPI*
- 2 x CAN-FD*
- GPIO*

*Shared

Short video impression: https://youtu.be/ck46U5zhy-M

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Guiliani Summary & Contacts

- **Guiliani is a state-of-the-art, high quality, proven software product designed to empower the GUI of the best products anywhere in great style**

- Customer's voice = **powerful, intuitive, innovative, perfectly scalable and well supported**

- **Enables fast time-to-market, smooth teamwork and completing your projects on time and on budget**

- **Please try it!** It's easy, even before you have target hardware. Because there are free desktop evaluation versions for Windows and Linux…

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www.guiliani.de

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Thank you!

Stay tuned at https://www.linkedin.com/company/tes-electronic-solutions

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