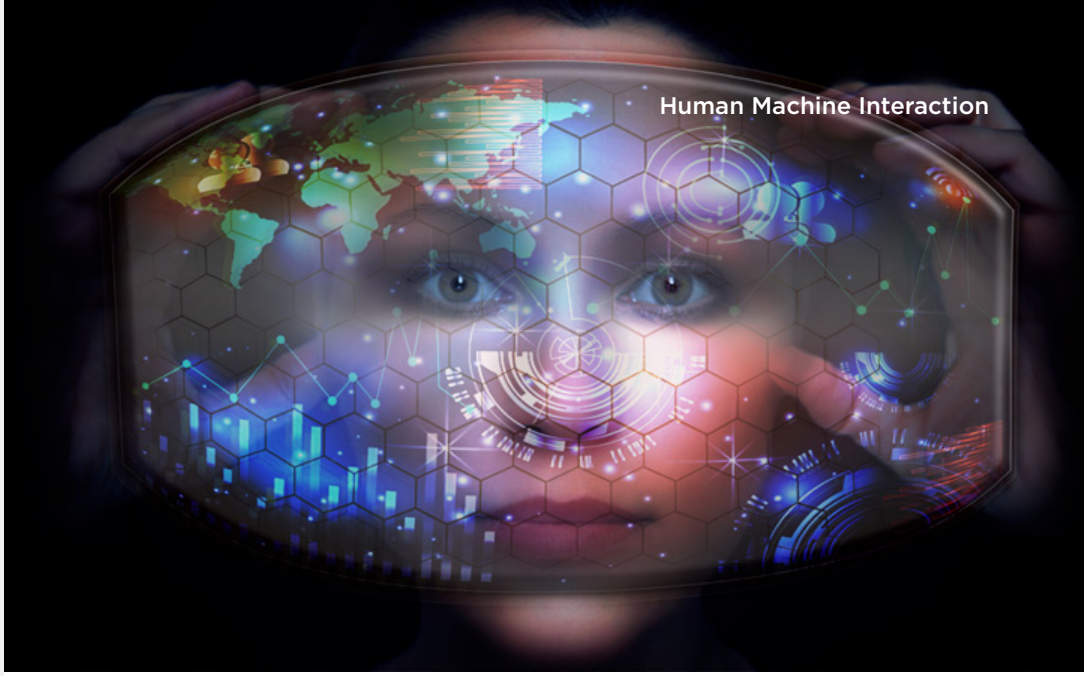
GlobalFoundries™



Wearable Display Driver using 55/28HV and 22FDX

Enabling innovative single-chip and discrete solutions

Industry's first and most advanced display driver in a premium-tier 28HV AMOLED DDIC and 22FDX microdisplay backplane.

Smarter AR/VR/MR display

- Increased computing capability on the display side and support for real-time video pipeline for AR/VR/MR applications.

Wearable electronics have demonstrated their unique capability in education, industry, healthcare and entertainment. Combined with augmented reality/virtual reality/mixed reality (AR/VR/MR), such applications are bringing human-machine interaction into the next generation. However, explosive data growth and real-time data analysis are driving the need for increased performance and power efficiency for display technologies. Ultra-low leakage and edge compute display drivers can handle these challenges and significantly speed up AR/VR/MR applications and other wearable electronics.

GlobalFoundries® (GF®) display driver (DDIC) solutions are optimized to reduce latency and actionable response times while enabling enhanced pixel driver functionality that is compatible with multiple display technologies.

GF display driver solutions at a glance‡

Platform	Solution	Key Features
55HV	microOLED AMOLED	• SRAM bitcell down to 0.3 um2 • Voltage support 1.2/7.7/20 V • Ultra-low leakage MV 4–8V Idoff<10 fA/um
28SLPe-HV	microLED AMOLED	• SRAM 0.12 um2 support Memory-In-Pixel • Multiple voltage options: 1.0/3.3 V, 1.0/8.0/20 V or 1.0/8.0/25 V • Ease of porting designs from 55/40 nm
22FDX™	LCOS microLED	• SRAM bitcell 0.11 um2 • Ultra-low power LV 0.5 V, SRAM 1 pA/cell • Voltage support 0.8/1.8 V with 5 V BOXFET • Automotive Grade 1 qualified • Reference design based on demand • 3D hybrid bonding and TSV option

The right partner for your AR/VR/MR development and manufacturing needs

GF has a long history of industry leadership in display driver manufacturing. Ranging from mono displays in medical machines and premium-tier AMOLED panel flagship smartphones, to automotive driving assistance touchscreen systems, GF has a proven track record in delivering the industry's most mature and advanced display drivers down to the 22 nm technology node. In addition, GF offers customization of BEOL levels to optimize mechanical, electrical and optical properties for AR/VR/MR solutions.

Post-fab services and 3D packaging

GF solutions are compatible with chip-on-film technology (COF), enabling flexible displays especially suitable for AMOLED wearable applications. High-density 3D hybrid bonding with sub-10 um bond pitches and TSV are available on the 28 nm and 22FDX technology platforms.

Maximize performance and minimize power consumption

22FDX™ is designed to deliver best-in-class digital performance, dynamic power and leakage power. Designers can get access to the industry's only body-bias ecosystem to further improve latency and take advantage of the platform's ultra-low power capability to further reduce power consumption for longer battery life, which is especially important for power-sensitive wearable applications.

Automotive capability

The 22FDX platform is automotive Grade 1 qualified. The GF AutoPro™ service package provides a broad set of solutions and manufacturing services that minimize automotive certification efforts and speed time to market. GF AutoPro™ sites are IATF 16949:2016 certified; IATF is the International Automotive Task Force, and registration to this standard is recognized worldwide as the basis for compliant automotive quality systems throughout the automotive supply chain.

Micro Display Driver Solutions from GF

microOLED	LCOS	microLED	
55HV Supports FHD and 4K resolution with up to 120 Hz refresh rate.	22FDX Supports pixel size down to 2.5 um with up to 2K x 2K resolution. Reflectivity >80% at 450 nm-650 nm wavelengths.	28SLPe-HV Supports Memory-In-Pixel pulse-width modulation (PWM).	22FDX Supports pixel size down to 2.5 um with up to 2K x 2K resolution.

Post-fab turnkey services

High-density 3D hybrid wafer-to-wafer bonding with sub-10 um bond pitches. TSV options and design support based on request.

LEARN MORE

Learn more about our differentiated portfolio of Human-Machine Interaction solutions at **gf.com/contact-us**

Contact Us

‡ For more information about platform availability and IP readiness, contact us at gf.com/contact-us