**Memory Bandwidth over Time** 10,000 -**Memory Bus type** O DDR O DDR2 O DDR3 O DDR4 A O EDO VRAM O FPM 2,000 O GDDR2 0 O GDDR3 1,000 -O GDDR4 O GDDR5 O GDDR5X O GDDR6 O GDDR6X O GDDR7 O HBM 200 O HBM2 O HBM2E O HBM3 100 НВМЗЕ Memory Bandwidth (GB/s) O LPDDR4X 00 A O A A A O O LPDDR5 000 O SDR SGRAM Vendor 20 AMD Intel **△** NVIDIA 00 O 40440 O A O 0 0 0.2 0.1 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 1997 1998 1999 Launch