Memory Bandwidth over Time 10,000 -**Memory Bus type** O DDR O DDR2 O DDR3 O DDR4 Δ O EDO VRAM O GDDR2 2,000 O GDDR3 0 O GDDR4 1,000 -O GDDR5 ○ GDDR5X O GDDR6 O GDDR6X O HBM O HBM2 O HBM2E 200 O HBM3 O LPDDR4x O LPDDR5 100 O SDR Memory Bandwidth (GB/s) SGRAM 0 Δ O Δ O Vendor 0 40 AMD 0 Intel ▲ NVIDIA 20 0 00 0 60 44 40 2 -Δ 0.2 0.1 2002 2003 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2001 2024 1998 1999 2000 2004 2023 1997 Launch