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**FIGURE 1.9** The processor integrated circuit inside the A12 package. The size of chip is 8.4 by 9.91 mm, and it was manufactured originally in a 7-nm process (see Section 1.5). It has two identical ARM big processors or cores in the lower middle of the chip, four small cores on the lower right of the chip, a graphical processor unit (GPU) on the far right (see Section 6.6), and a domain-specific accelerator for neural networks (see Section 6.7), called the NPU, on the far left. In the middle are second-level cache memories (L2) for the big and small cores (see Chapter 5). At the top and bottom of the chip are interfaces to main memory (DDR DRAM).