This second part of this book describes a range of custom architectures, which have varying degrees of complexity and flexibility. Starting from very simple cycle-based hardware models, we gradually add control structures to increase their flexibility. This leads the discussion into FSMD (Finite State Machine with Datapath), micro-programmed architectures, general-purpose embedded cores, and finally system-on-chip architectures. An over-arching theme, besides flexibility, is the trade-off of that flexibility with performance. This trade-off helps designers to navigate the design space of custom architectures.