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# 17 Challenges and Future Directions of 3D Physical Design

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## ABSTRACT

The concept of 3D integrated circuits (3D-ICs) provides new opportunities for meeting current and future design criteria, such as performance, functionality, delay, and power consumption. 3D-ICs are thus considered as a promising approach to spur both *More Moore* (i.e., further down-scaling of baseline CMOS device nodes) and *More-than-Moore* (i.e., diversification of functionality; heterogeneous system integration) [1,9] as shown in Figure 17.1. At the same time, 3D-ICs increase complexity for manufacturing and physical design notably.