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High Performance Computation of Injection Molding on PC Clusters with Hybrid Element Flexibility

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True 3D mold filling simulation is becoming popula r for its capability to providing better accuracy with minimum model simplification. However, such a large-scale non-linear computation places extreme demands on computing power. Moreover, the complex 3D geometry of the injection molded part further challenges the capabilities of the existing mesh generator and computation algorithms. In view of this fact, this paper develops an innovative parallel true 3D mold filling simulation technology, which allows for the adoption of hybrid volume element topologies. The parallel processing capabilities and the hybrid-element-supported solver capabilities of the proposed methodology have allowed the user to perform analyses in much less time on complex model with much larger element number than ever.