Procedural content generation is a method that is sometimes used in video games to increase their replayability. In our previous work (Nepožitek, 2018), we implemented an algorithm for procedural generation of 2D dungeons, with the main focus on giving game designers complete control over the structure of generated levels. The algorithm takes a set of user-defined building blocks as input and produces levels that all follow the structure of a specified level connectivity graph. In the first part of the thesis, we address some shortcomings of our previous work. We improve the algorithm with several new features such as better support for corridors between rooms or the possibility to generate platformer levels. We also propose several performance improvements and analyze the speed of the algorithm on various inputs. In the second part of the thesis, we present an integration of our algorithm into the Unity game engine. In the final part of the thesis, we demonstrate that our generator is able to produce levels that are similar to what we can see in two popular games - Enter the Gungeon and Dead Cells. The resulting algorithm is much faster than the previous version, contains new features and is ready to be used in the Unity game engine.