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(57) Abstract :

A version-aware code compilation engine (100) for continuous integration pipelines is disclosed, comprising a version analysis module (101), a dependency mapping engine (102), a selective compilation engine (103), a compatibility validation module (104), and a build artifact manager (105). The engine (100) dynamically detects code version changes, maps dependencies, validates compatibility, and selectively compiles only impacted modules, thereby accelerating build processes, reducing resource usage, and minimizing integration errors, enhancing overall CI pipeline efficiency.

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