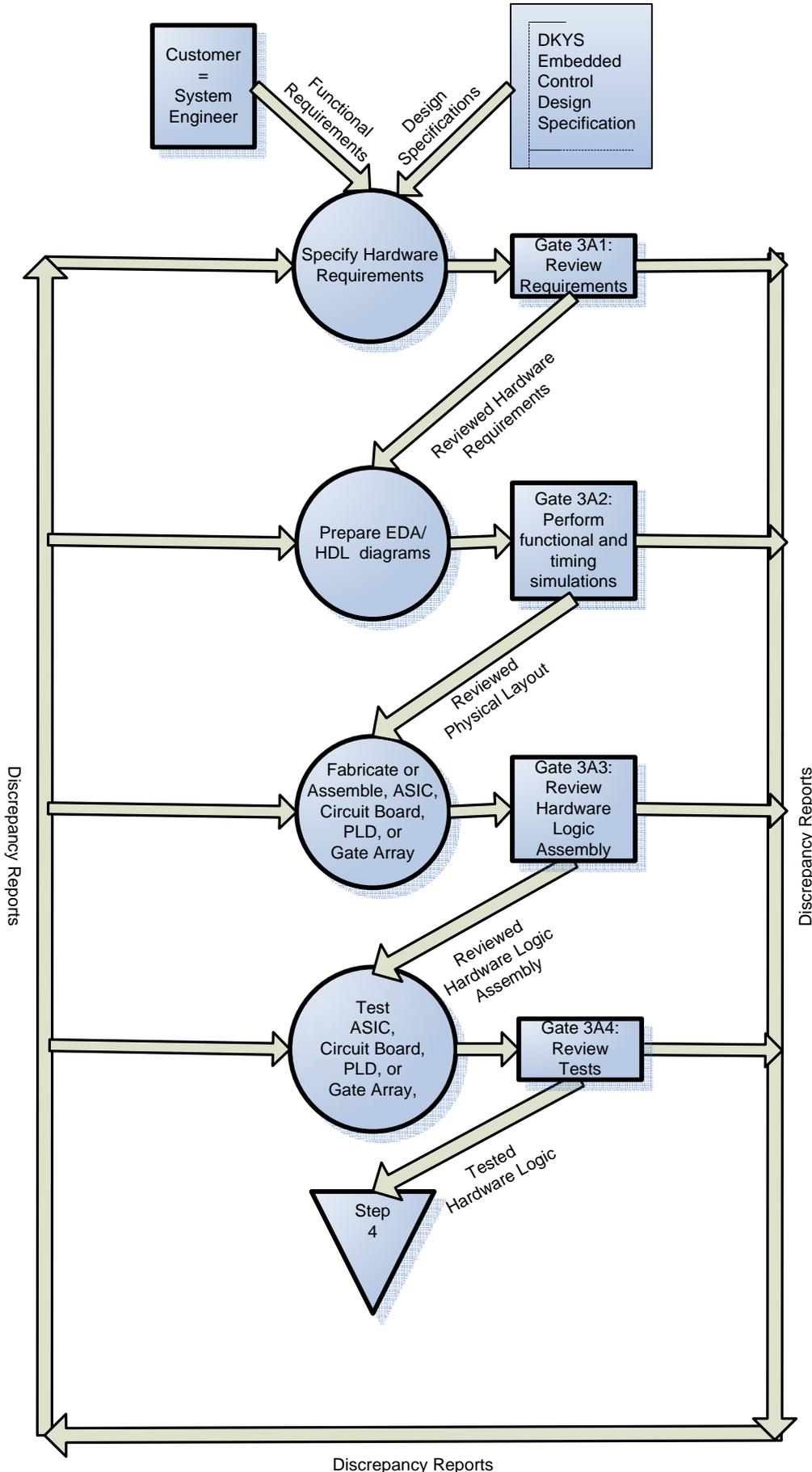


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STEP 3A. Electronic
Hardware Development
Process

9/26/2007

Version 1.0

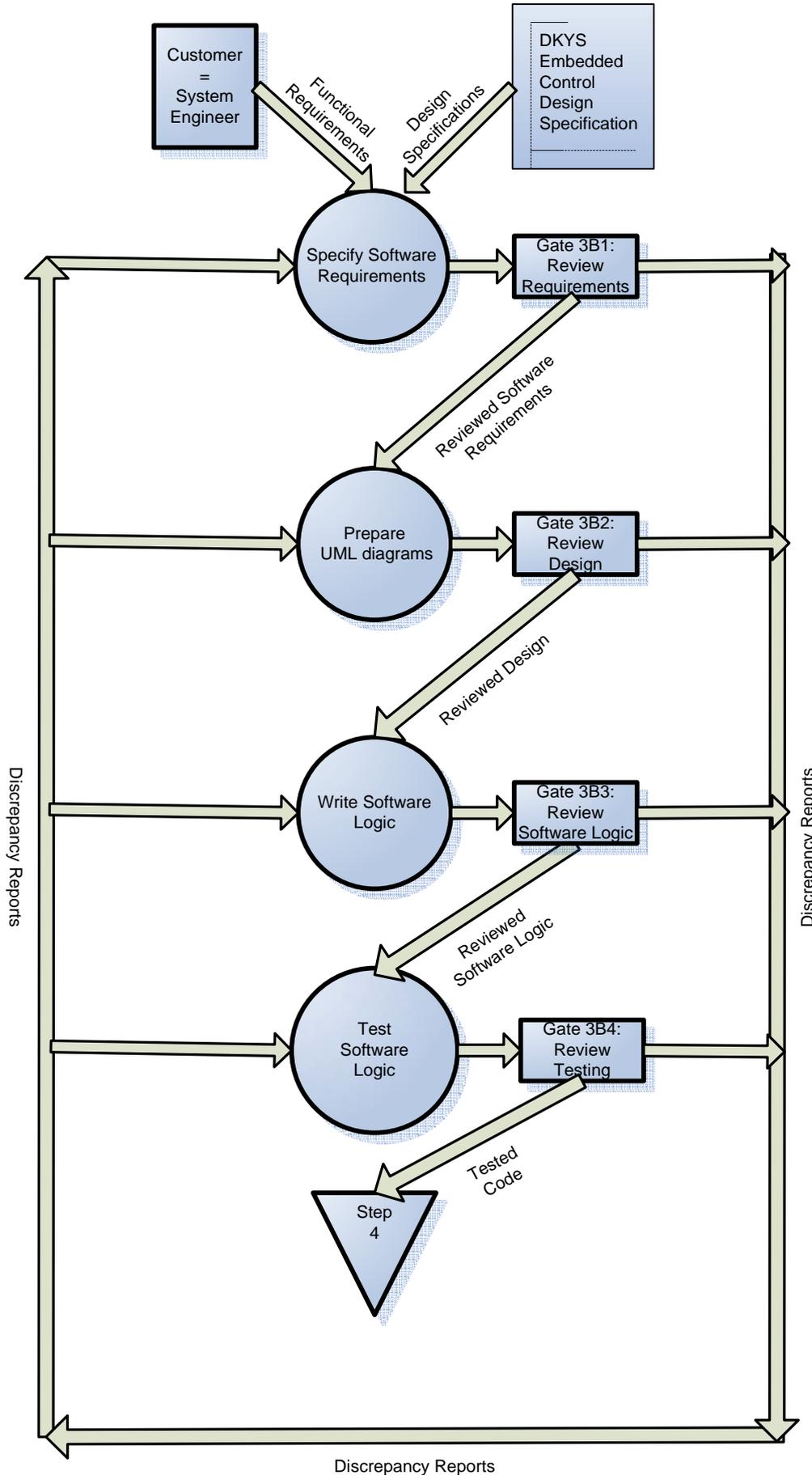


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STEP 3B. Embedded
Software/Firmware
Development Process

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Requirements Review

Assess requirements for completeness:

- * input/output data ranges, units, and accuracy,
- * safety critical variables identification and use,
- * TBD's addressed

Computer-Aided Software Engineering (CASE) Diagrams

Data dictionary
Control flow digrams
Data flow diagrams
State transition diagrams
Calling Structure

Coding Conventions

Follow code writing conventions, for example:

- * variable initialization and naming,
- * In-line documentation,
- * module size and fan in/fan out limitations,
- * Disallowed constructs (e.g. use of pointer arithmetic),
- * use of assertions such as pre-conditions and post-conditons, exception handling

Test Procedures

- * static analysis of code
 - safety-critical data flow
 - adherence to coding conventions
- * dynamic execution of code
 - multiple condition coverage
 - boundary value
 - sequencing/state transition tests
 - nominal and off-nominal tests
 - timing tests

Test Levels

- * function/utility libraries
- * unit (subroutine)
- * module or object
- * sub-frame (part of a Sense-Process-Actuate) sequence
- * frame (all of a Sense-Process-Actuate) sequence

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STEP 4. PROTOTYPE DEVELOPMENT PROCESS

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