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Software Reliability Engineering Practice in the Development of Embedded RTOS

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Abstract

With the rapid development of computer technology and advances in chip manufacturing technology, Embedded Real Time Operating System has been gradually infiltrating into safety critical industry domain, such as aerospace and aviation. Embedded Real Time Operating System is the combination of traditional embedded system and real time operating system, and is characterized by hard real time, high reliability and configurability. Its reliability is essential to the overall safety critical embedded system.

The research included in this talk is based on the context of the development of a safety critical Embedded Real Time Operating System. With the discussion of the objectives provided in RTCA DO-178B, a Level A software compliance Embedded Real Time Operating System development methodology is presented in this talk. Combined with the theory on software reliability, this talk comes up with a Schneidewind model based software reliability assessment method, the engineering practice of this method is also included.

About the speaker



Wei Han, PHD, Software Chief Researcher of Aviation Industries of China (AVIC), works with AVIC Aeronautic Computing Technique Institute since 1984. His major research field includes Avionics systems, IMA, airborne embedded computers, and dependable software. He devotes to operating system research, requirement engineering, dependable software, software safety, software reliability, and dependable software engineering, etc.

Aeronautic Computing Technique Research Institute (ACTRI) established in 1958. ACTRI is a Chinese main supplier specialized in the development and production of airborne computers, operating systems, and System On a Chip, etc. All of our products comply with high reliability quality standards and used in various aircraft systems. ACTRI is located in Xi'an, an ancient city in China.