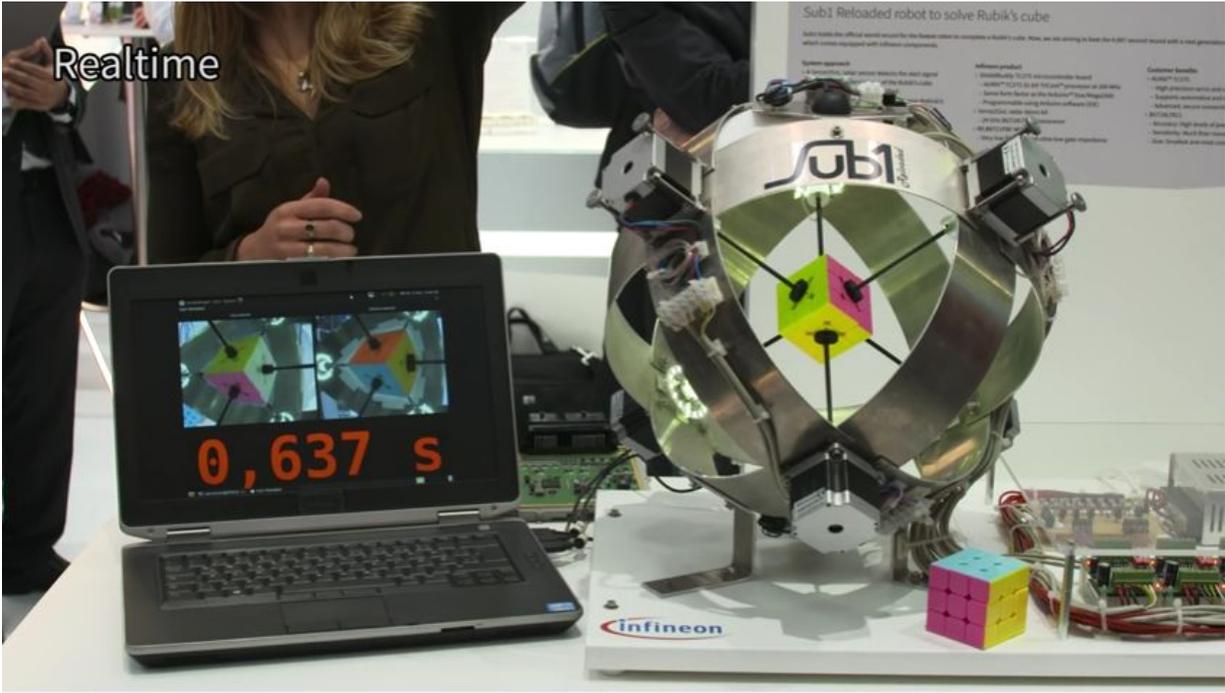


# Infineon chip has its day in the sun with Rubik's Cube solved in 0.637

November 11 2016, by Nancy Owano



(Tech Xplore)—A robot can solve a Rubik's Cube in 637 milliseconds. The robot, named "Sub1 Reloaded," pulled off the feat with the help of (1) microchips from Infineon and (2) microcontroller Aurix. The latter is described as one of the world's most powerful minicomputers.

A video recently posted said the time represents a new Rubik's Cube machine world record.

It was set at the Electronica trade fair in Munich.

John Biggs in *TechCrunch* was one of many site writers talking about the Sub1 Reloaded machine. And its numbers. This was far less than the fastest human time of 4.9 seconds, said Biggs. (It takes a human at least 4.9 seconds to solve the puzzle.)

The process is so fast that your eyes cannot catch it, so it was captured in a slow [motion](#) video.

Biggs described the process at play: The robot "uses six motors to turn and twist the cube after another computer scans it, solves the puzzle virtually. The arms quickly begin to move the cube into a solved [position](#)."

*Fudzilla* said computer sensor cameras "snapped the faces and then rotated the necessary commands to power semiconductors which activated six motors on each side of the [cube](#)."

*The Sun* had this to say about the procedure: "At the press of a button, blinkers are lifted from the robot's sensors, allowing it to analyse the positions of the coloured squares and calculate the moves needed so all six sides show a single colour. It then transmitted commands to six motor-controlled arms, which held the central square of each of the cube's six faces and twisted them 21 times to solve the [puzzle](#)."

The company shared details, saying, "'Sub1 Reloaded' contains a number of other microchips. Like most devices we use every day, they link the real and digital worlds. The attempt started with the press of a button. The shutters of the sensor cameras were removed. The machine then

detected the position of the elements. These had been previously scrambled, in accordance with the special requirements of the World Cube Association. The computing chip, or the 'brain' of the machine, figured out the fastest solution and transmitted the necessary commands to the power semiconductors. These 'muscles' then activated six motors, one for each side of the cube, at record speed and then brought them to a halt – all within the fraction of a second."

Sub1 Reloaded as a proof of concept is "to show off Infineon's self-driving car chips," said Biggs. To be sure, the company made note of its Aurix microcontroller as contributing to the problem solving and also as an aid to autonomous driving. *EP&T* (Electronic Products and Technology) made a similar connection between [driver assistance systems](#) and Infineon technology.

Leo Kelion, technology desk editor, BBC, said, "Infineon wants to highlight the speed at which its Aurix microcontrollers can help cars respond to obstacles and automatically apply their [brakes](#)."

The company, meanwhile, had its own message about the advantages in a high processing rate. "Minimal [reaction](#) times play an even greater role in [autonomous driving](#). A high data-processing rate is necessary to ensure real-time capabilities with clock frequencies of 200 MHz. As a result of this ability, a vehicle can safely and reliably apply the brakes when it approaches a barrier."

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