

Tektronix 11000-Series Plug-ins

The Evolution of 7000 Series into the Digital World

Giovanni Becattini

References

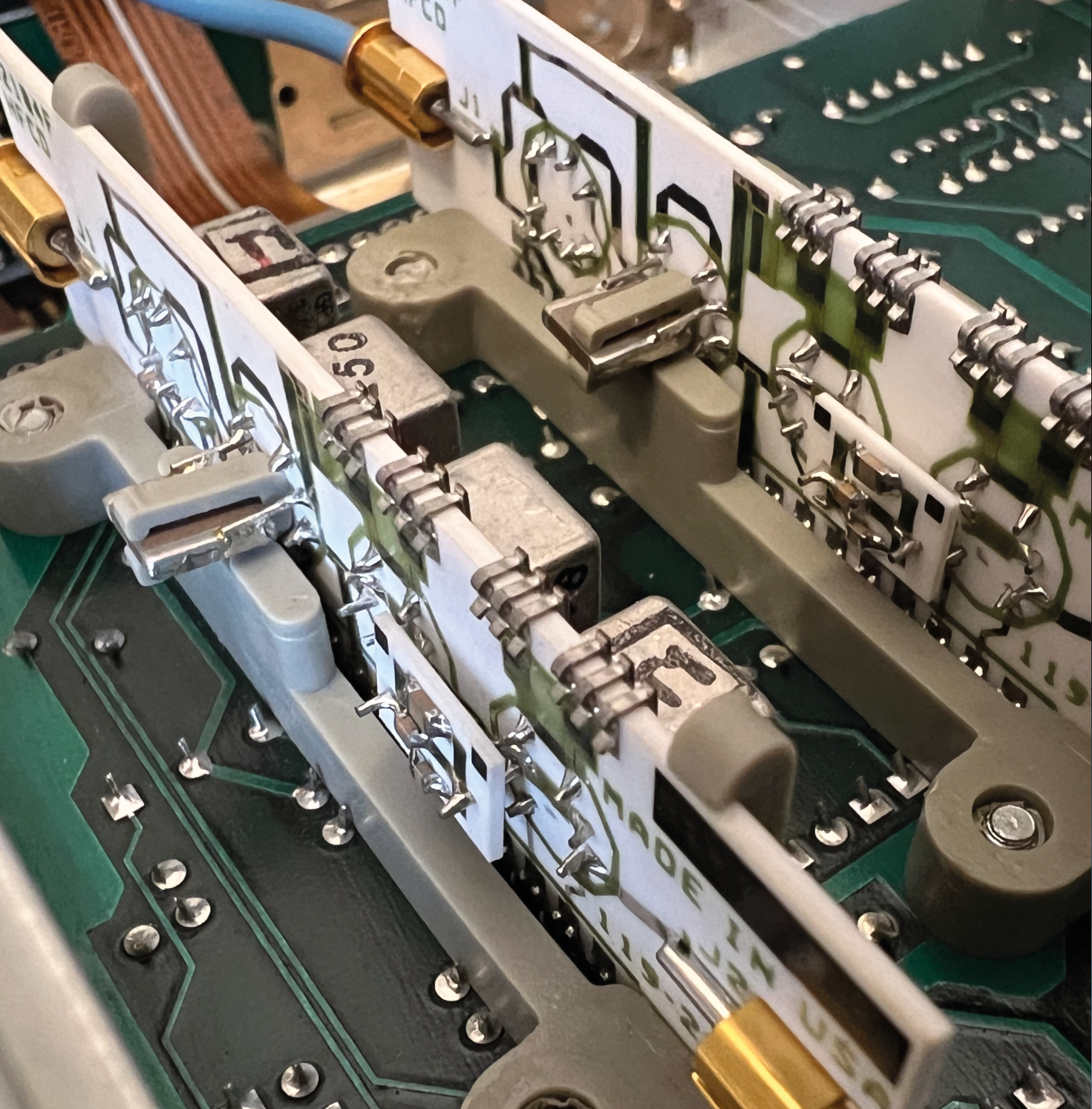
The following references are used in this book:

- [TEO] Tektronix Epic Oscilloscopes – Elektor Books
- [7KS] Tektronix 7000 Series – Elektor Books
- [TREG] Tektronix Oscilloscopes Restoration Guide – Elektor Books
- [TGHP] The Great Hewlett-Packard – free download from www.quacktech.it
- [VRE] Vintage Radio Equipment – Elektor Book
- [MAC] Apple Macintosh, , History, Engineering, and Restoration – Elektor Books
- [QT602] The Good Giant – Tektronix DSA 602A Oscilloscope – Quacktech
- [QT11KP] The Last Plug-ins – Tektronix 11000-Series Plug-ins – Quacktech
- [SCLI] Some Classical Instrument – coming soon
- [QTCOL] Collins Classics – KWM-2, 30L-1 and 51S-1: History, Engineering, and Restoration – Quacktech Editions
- [QT324] Two Giants and a Shorty – Tektronix 323/324 - Quacktech

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Hi-tech Plug-ins

With this booklet, the saga of the Tektronix 11000 Series reaches its conclusion. Over time we have explored this remarkable family of instruments in several dedicated books:

- **Tektronix Epic Oscilloscopes** – story of the 11000 project and description of the 11403 oscilloscope (Elektor Books)
- **Seeing the Invisible** – Tektronix 11302 Oscilloscope (Quacktech Editions)
- **The Good Giant** – Tektronix DSA 602A Oscilloscope (Quacktech Editions)

*Here we focus on the most common **11000-Series plug-ins**—extraordinary modules with the physical presence of the classic 7000 Series but already built with some of the advanced technology of the 1990s. These 11k plug-ins were used also in other similar oscilloscopes with different names, like the DSA 600s, but with similar architecture.*

We will see also a typical 11000-Series probe and the Tekprobe interface. Still missing are the intriguing 3-GHz 11A81 amplifier, the 11A16 Current Amplifier and the 11800/CSA mainframes, which might deserve a future booklet of their own.

Unlike earlier generations, 11000-Series plug-ins feature almost no front-panel controls. They are fully software-driven, including calibration, offering top-level performance and impressive functional density.

Yet they also mark the end of an era. As technology evolved, the plug-in architecture became obsolete, and oscilloscopes began integrating everything internally. This makes these last plug-ins even more fascinating—a final, brilliant chapter before the architecture vanished forever.

Giovanni “Gianni” Becattini

giovanni.becattini.books@gmail.com

*To my wife
and my family*