

## Visual NAND Reconstructor. Advanced training (preview version)

*Duration: 2 days*

1. Chip-off data recovery in case of multiple chips onboard. Different controller configurations and usage of multiple chips/crystals. Page allocation analysis.

*Practise 1: Several cases with multiple dumps for analysis and recovery*

2. Scrambled spare area. SA XOR key search and extraction with further descrambling.

*Practise 2: Dump analysis and SA XOR key extraction. SA descrambling.*

3. Sandisk controllers. Challenges and solutions. Page structure analysis. Scrambler of Sandisk controllers. Page allocation schemes. SA analysis and logical image reconstruction.

*Practise 3: Analysis of several cases with Sandisk controller.*

4. Advanced techniques for noisy-like xor key extraction. Markers table as a tool for xor key analysis. Xor key cleaning procedures and internal structure analysis.

*Practise 4: Dump analysis and xor key extraction out of garbage. Cleaning and usage of extracted key.*

5. Scrambled ECC. ECC XOR analysis and extraction. Special procedures for ECC xor key reconstruction from chunks. ECC xor key cleaning procedures.

*Practise 5: Dump analysis and ECC Xor key extraction from fragments. Cleaning procedures and key usage.*

6. Unknown TLC NAND configuration analysis. Peculiarities of TLC architecture. Typical configurations and basic principles of analysis. Comparison to Async devices.

*Practise 6: Analysis of configuration of unknown TLC NAND memory chip.*