Lexmark® chips - MS/MX, CS/CX, XM series

The Lexmark® chips series for MS/MX/CS/CX introduced in 2011-2012, have been a high challenge for chip engineers for the aftermarket, without doubt. The encryption level is one of highest in the industry. Why did it not take long for the first aftermarket chips to arrive? And why is reversed engineering still the best way to develop a stable chip? The industry landscape changed a lot too in the past 4 years. This is our white paper about this topic.

Technically it is not very hard to find a solution for the MS/MX/CS/CX chips. If you collect enough serial numbers from market, it is fairly easy to programme a serial programmer on a similar IC, but just similar. Currently chip makers can be split up in two chip engineering concepts:
  (1) copied type
  (2) reversed engineering ASIC type
By today there is a small number of MS chip manufacturers that are manufactured using the first (1) technology. One dominant player has taken a lead in this for sure and many are grateful for there job. For the past 4 years they have supplied the market dominantly. Other China manufacturers followed.

By end of 2017 an high tech engineering group released chips made under the second technology (2), fully ASIC type of chips, reversed engineered. It took 4 years of development and testing. The resulting chips are extremely stable, resistant to firmware changes and stealthware.
So what is the difference between these two technologies if compared and tested?

Comparison question:	copied type	reversed engineering ASIC type
Q: How long did the development of these chips take?	<1 year	4 years
Q: About the number lock on Lexmark® MX MS chips. When you get number lock, how fast do you get a new number or how is this solved?	potential risk	no risk with ASIC type
Q: Is IP address tracking of end user possible?	yes, some chips have monitoring software	no
Q: Sometime the printer activates the chip to jump into 10x faster communication with the printer: does this affect functionality?	yes & failure, IC is not fast enough	no, passes test
Q: are these chips future firmware compliant? Are these chips made to anticipate on future firmware?. Same for stealthware also?	unstable	yes
Q: Can these chips be resetted?	technically: yes, providing toner low is not passed	no
Q: Does the chips include a system to bypass the number lock issue?	no, unstable	yes
Q: Can you develop High Capacity chips?	unstable	yes
Q: Can you develop chips working for MS and MX together, like universal types of chips?	no, OEM ref is leading	yes
Q: Can multiregional chips be made?	no	yes

In the table above we marked the difference between the two different technologies by answering some questions that our clients and we raised ourselves a lot the past years.

As you can see from the table, there are pro's and con's for both technologies.

ASIC chips have a number of key benefits over the first technology for sure. More innovative solutions are possible. And far more stable in situations to expect.

In the current market of newbuilts being dominant, giving high pressure to remanufacturers/recyclers to perform, keeping clients is key for everybody.

We believe the choice of technology is key for any recycler or remanufacturer's future. Stability, independence and security are the key for keeping recyclers business.

From a sales and marketing perspective, one could argue on the fact that if chips are used with IP tracking software, what will happen to these addresses?

Are you choosing an independent technology that will keep you in business?