```
Block Cipher Modes of Operation
     Counter (CTR)
Initial Counter is
   F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF
Plaintext is
   6BC1BEE2 2E409F96 E93D7E11 7393172A
   AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
   30C81C46 A35CE411 E5FBC119 1A0A52EF
   F69F2445 DF4F9B17 AD2B417B E66C3710
CTR-AES128 (Encryption)
Key is
   2B7E1516 28AED2A6 ABF71588 09CF4F3C
Plaintext is
   6BC1BEE2 2E409F96 E93D7E11 7393172A
   AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
   30C81C46 A35CE411 E5FBC119 1A0A52EF
   F69F2445 DF4F9B17 AD2B417B E66C3710
 Block #1
   InputBlock
               F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF
   OutputBlock EC8CDF73 98607CB0 F2D21675 EA9EA1E4
   Text-In
               6BC1BEE2 2E409F96 E93D7E11 7393172A
   Text-Out
               874D6191 B620E326 1BEF6864 990DB6CE
 Block #2
   InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00
   OutputBlock
               362B7C3C 67735163 18A077D7 FC5073AE
   Text-In
               AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51
   Text-Out
              9806F66B 7970FDFF 8617187B B9FFFDFF
 Block #3
   InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01
```

6A2CC378 7889374F BEB4C81B 17BA6C44 30C81C46 A35CE411 E5FBC119 1A0A52EF

Text-Out 5AE4DF3E DBD5D35E 5B4F0902 0DB03EAB

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02

OutputBlock

Text-In

Block #4

OutputBlock E89C399F F0F198C6 D40A31DB 156CABFE Text-In F69F2445 DF4F9B17 AD2B417B E66C3710 Text-Out 1E031DDA 2FBE03D1 792170A0 F3009CEE

Ciphertext is

874D6191 B620E326 1BEF6864 990DB6CE 9806F66B 7970FDFF 8617187B B9FFFDFF 5AE4DF3E DBD5D35E 5B4F0902 0DB03EAB 1E031DDA 2FBE03D1 792170A0 F3009CEE

CTR-AES128 (Decryption)

Key is

2B7E1516 28AED2A6 ABF71588 09CF4F3C

Ciphertext is

874D6191 B620E326 1BEF6864 990DB6CE 9806F66B 7970FDFF 8617187B B9FFFDFF 5AE4DF3E DBD5D35E 5B4F0902 0DB03EAB 1E031DDA 2FBE03D1 792170A0 F3009CEE

Block #1

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF OutputBlock EC8CDF73 98607CB0 F2D21675 EA9EA1E4 874D6191 B620E326 1BEF6864 990DB6CE Text-In Text-Out 6BC1BEE2 2E409F96 E93D7E11 7393172A Block #2 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00 362B7C3C 67735163 18A077D7 FC5073AE OutputBlock Text-In 9806F66B 7970FDFF 8617187B B9FFFDFF Text-Out AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 Block #3 F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01 InputBlock OutputBlock 6A2CC378 7889374F BEB4C81B 17BA6C44 Text-In 5AE4DF3E DBD5D35E 5B4F0902 0DB03EAB Text-Out 30C81C46 A35CE411 E5FBC119 1A0A52EF Block #4 F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02 InputBlock OutputBlock E89C399F F0F198C6 D40A31DB 156CABFE Text-In 1E031DDA 2FBE03D1 792170A0 F3009CEE Text-Out F69F2445 DF4F9B17 AD2B417B E66C3710

6BC1BEE2 2E409F96 E93D7E11 7393172A AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 30C81C46 A35CE411 E5FBC119 1A0A52EF F69F2445 DF4F9B17 AD2B417B E66C3710

CTR-AES192 (Encryption)

F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF

Key is

8E73B0F7 DA0E6452 C810F32B 809079E5 62F8EAD2 522C6B7B

Plaintext is

6BC1BEE2 2E409F96 E93D7E11 7393172A AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 30C81C46 A35CE411 E5FBC119 1A0A52EF F69F2445 DF4F9B17 AD2B417B E66C3710

Block #1

InputBlock

717D2DC6 39128334 A6167A48 8DED7921 OutputBlock Text-In 6BC1BEE2 2E409F96 E93D7E11 7393172A Text-Out 1ABC9324 17521CA2 4F2B0459 FE7E6E0B Block #2 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00 OutputBlock A72EB3BB 14A55673 4B7BAD6A B16100C5 Text-In AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 090339EC 0AA6FAEF D5CCC2C6 F4CE8E94 Text-Out Block #3 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01 2EFEAE2D 72B72261 3446DC7F 4C2AF918 OutputBlock Text-In 30C81C46 A35CE411 E5FBC119 1A0A52EF Text-Out 1E36B26B D1EBC670 D1BD1D66 5620ABF7 Block #4 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02 OutputBlock B9E783B3 0DD7924F F7BC9B97 BEAA8740 Text-In F69F2445 DF4F9B17 AD2B417B E66C3710 Text-Out 4F78A7F6 D2980958 5A97DAEC 58C6B050

Ciphertext is

1ABC9324 17521CA2 4F2B0459 FE7E6E0B 090339EC 0AA6FAEF D5CCC2C6 F4CE8E94

1E36B26B D1EBC670 D1BD1D66 5620ABF7 4F78A7F6 D2980958 5A97DAEC 58C6B050

CTR-AES192 (Decryption)

Key is

8E73B0F7 DA0E6452 C810F32B 809079E5 62F8EAD2 522C6B7B

Ciphertext is

1ABC9324 17521CA2 4F2B0459 FE7E6E0B 090339EC 0AA6FAEF D5CCC2C6 F4CE8E94 1E36B26B D1EBC670 D1BD1D66 5620ABF7 4F78A7F6 D2980958 5A97DAEC 58C6B050

Block #1

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF OutputBlock 717D2DC6 39128334 A6167A48 8DED7921 Text-In 1ABC9324 17521CA2 4F2B0459 FE7E6E0B Text-Out 6BC1BEE2 2E409F96 E93D7E11 7393172A Block #2 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00

 InputBlock
 F0F1F2F3
 F4F5F0F7
 F8F9FAFB
 FCFDFF00

 OutputBlock
 A72EB3BB
 14A55673
 4B7BAD6A
 B16100C5

 Text-In
 090339EC
 0AA6FAEF
 D5CCC2C6
 F4CE8E94

 Text-Out
 AE2D8A57
 1E03AC9C
 9EB76FAC
 45AF8E51

Block #3

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01
OutputBlock ZEFEAE2D 72B72261 3446DC7F 4C2AF918
Text-In 1E36B26B D1EBC670 D1BD1D66 5620ABF7
Text-Out 30C81C46 A35CE411 E5FBC119 1A0A52EF

Block #4

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02 OutputBlock B9E783B3 0DD7924F F7BC9B97 BEAA8740 Text-In 4F78A7F6 D2980958 5A97DAEC 58C6B050 Text-Out F69F2445 DF4F9B17 AD2B417B E66C3710

Plaintext is

6BC1BEE2 2E409F96 E93D7E11 7393172A AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 30C81C46 A35CE411 E5FBC119 1A0A52EF F69F2445 DF4F9B17 AD2B417B E66C3710

CTR-AES256 (Encryption) Key is 603DEB10 15CA71BE 2B73AEF0 857D7781 1F352C07 3B6108D7 2D9810A3 0914DFF4 Plaintext is 6BC1BEE2 2E409F96 E93D7E11 7393172A AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 30C81C46 A35CE411 E5FBC119 1A0A52EF F69F2445 DF4F9B17 AD2B417B E66C3710 Block #1 F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFEFF InputBlock OutputBlock 0BDF7DF1 59171633 5E9A8B15 C860C502 6BC1BEE2 2E409F96 E93D7E11 7393172A Text-In 601EC313 775789A5 B7A7F504 BBF3D228 Text-Out Block #2 InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00 5A6E699D 53611906 5433863C 8F657B94 OutputBlock AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 Text-In Text-Out F443E3CA 4D62B59A CA84E990 CACAF5C5 Block #3 F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01 InputBlock OutputBlock 1BC12C9C 01610D5D 0D8BD6A3 378ECA62 Text-In 30C81C46 A35CE411 E5FBC119 1A0A52EF Text-Out 2B0930DA A23DE94C E87017BA 2D84988D

Block #4

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02
OutputBlock 2956E1C8 693536B1 BEE99C73 A31576B6
Text-In F69F2445 DF4F9B17 AD2B417B E66C3710
Text-Out DFC9C58D B67AADA6 13C2DD08 457941A6

Ciphertext is

601EC313 775789A5 B7A7F504 BBF3D228 F443E3CA 4D62B59A CA84E990 CACAF5C5 2B0930DA A23DE94C E87017BA 2D84988D DFC9C58D B67AADA6 13C2DD08 457941A6

Key is

603DEB10 15CA71BE 2B73AEF0 857D7781 1F352C07 3B6108D7 2D9810A3 0914DFF4

Ciphertext is

601EC313 775789A5 B7A7F504 BBF3D228 F443E3CA 4D62B59A CA84E990 CACAF5C5 2B0930DA A23DE94C E87017BA 2D84988D DFC9C58D B67AADA6 13C2DD08 457941A6

Block #1

InputBlock	F0F1F2F3	F4F5F6F7	F8F9FAFB	FCFDFEFF
OutputBlock	0BDF7DF1	59171633	5E9A8B15	C860C502
Text-In	601EC313	775789A5	B7A7F504	BBF3D228
Text-Out	6BC1BEE2	2E409F96	E93D7E11	7393172A
Block #2				
Innu+Rlock	F0F1F2F3	F4F5F6F7	FREGEVER	ECEDEE00

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF00 OutputBlock 5A6E699D 53611906 5433863C 8F657B94 Text-In F443E3CA 4D62B59A CA84E990 CACAF5C5 Text-Out AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51

Block #3

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF01
OutputBlock 1BC12C9C 01610D5D 0D8BD6A3 378ECA62
Text-In 2B0930DA A23DE94C E87017BA 2D84988D
Text-Out 30C81C46 A35CE411 E5FBC119 1A0A52EF

Block #4

InputBlock F0F1F2F3 F4F5F6F7 F8F9FAFB FCFDFF02 OutputBlock 2956E1C8 693536B1 BEE99C73 A31576B6 Text-In DFC9C58D B67AADA6 13C2DD08 457941A6 Text-Out F69F2445 DF4F9B17 AD2B417B E66C3710

Plaintext is

6BC1BEE2 2E409F96 E93D7E11 7393172A AE2D8A57 1E03AC9C 9EB76FAC 45AF8E51 30C81C46 A35CE411 E5FBC119 1A0A52EF F69F2445 DF4F9B17 AD2B417B E66C3710
