AOC2021 – Day 16: part 0ne.

// len = 18, data=[8A004A801A8002F478]

// len = 72, data =

“\_\_\_8\_\_\_A\_\_\_0\_\_\_0\_\_\_4\_\_\_A\_\_\_8\_\_\_0\_\_\_1\_\_\_A\_\_\_8\_\_\_0\_\_\_0\_\_\_2\_\_\_F\_\_\_4\_\_\_7\_\_\_8”

“100010100000000001001010100000000001101010000000000000101111010001111000”

 VVVTTTiLLLLLLLLLLL

=4. =sub-packet개수:1

“\_\_\_8\_\_\_A\_\_\_0\_\_\_0\_\_\_4\_\_\_A\_\_\_8\_\_\_0\_\_\_1\_\_\_A\_\_\_8\_\_\_0\_\_\_0\_\_\_2\_\_\_F\_\_\_4\_\_\_7\_\_\_8”

“100010100000000001001010100000000001101010000000000000101111010001111000”

“---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_VVVTTTiLLLLLLLLLLL

                    =1 =sub-packet개수:1

“\_\_\_8\_\_\_A\_\_\_0\_\_\_0\_\_\_4\_\_\_A\_\_\_8\_\_\_0\_\_\_1\_\_\_A\_\_\_8\_\_\_0\_\_\_0\_\_\_2\_\_\_F\_\_\_4\_\_\_7\_\_\_8”

“100010100000000001001010100000000001101010000000000000101111010001111000”

“---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_VVVTTTiLLLLLLLLLLLLLLL

                                      =5. =sub-packet bits: 11bits

“\_\_\_8\_\_\_A\_\_\_0\_\_\_0\_\_\_4\_\_\_A\_\_\_8\_\_\_0\_\_\_1\_\_\_A\_\_\_8\_\_\_0\_\_\_0\_\_\_2\_\_\_F\_\_\_4\_\_\_7\_\_\_8”

“100010100000000001001010100000000001101010000000000000101111010001111000”

“---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_---\_\_\_-\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_VVVTTTAAAAA

                                              =6 =literal

Length Type ID (=1) = number of sub-packets,

I(=0) 경우에는, total bits count of sub-packets

Sum of version IDs = 4 + 1 + 5 + 6 = 16

len=26, data=[620080001611562C8802118E34]

len = 104, data = "01100010000000001000000000000000000101100001000101010110001011001000100000000010000100011000111000110100"

~~“vvvTTTiLLLLLLLLLLLvvvTTTAAAAAvvvTTTBBBBBvvvTTTAAAAAvvvTTTBBBBBvvvTTTiLLLLLLLLLLLvvvTTTCCCCCvvvTTTDDDDD~~

= 2개 =Literal =literal =literal =literal =literal =literal

(다음 리터럴 패킷 2개)

~~I(=1)일떄, sub-packet size는 무조건 11 bits 이다~~

~~Version sum = 3 + 0 + 0 + 0 + 5 + 1 + 0 + 3~~

~~= 3 + 5 + 1 + 3 = 12 (IN-CORRECT)~~

"01100010000000001000000000000000000101100001000101010110001011001000100000000010000100011000111000110100"

“vvvTTTiLLLLLLLLLLLvvvTTTiLLLLLLLLLLLLLLLvvvTTTAAAAAvvvTTTBBBBBvvvTTTiLLLLLLLLLLLvvvTTTCCCCCvvvTTTDDDDD

= 2개 =sub-pkt-bits =Literal =literal =literal =literal

=(서브패킷 2개) =22bits =2개

Version sum = 3 + 0 + 0 + 5 + 1 + 0 + 3

= 3 + 5 + 1 + 3 = 12 (CORRECT)

len=28, data=[C0015000016115A2E0802F182340]

len = 112, data =

0 1. 2. 3. 4. 5. 6. 7. 8 9. 0 1

"1100000000000001010100000000000000000001011000010001010110100010111000001000000000101111000110000010001101000000"

~~vvvTTTiLLLLLLLLLLLLLLLvvvTTTiLLLLLLLLLLLLLLLvvvTTTiLLLLLLLLLLLLLLLvvvTTTiLLLLLLLLLLLvvvTTTiLLLLLLLLLLLLLLL~~

~~=6 =0 0 = 84 bits 0 0 0 = 22 bits =4 =4~~

~~=literal packet =literal packet~~

~~Version sum = 6 + 0 + 0 + 4 + 7 = 6 + 4 + 7 = 17~~

len = 112, data =

0 1. 2. 3. 4. 5. 6. 7. 8 9. 0 1

"1100000000000001010100000000000000000001011000010001010110100010111000001000000000101111000110000010001101000000"

vvvTTTiLLLLLLLLLLLLLLLvvvTTTiLLLLLLLLLLLLLLLvvvTTTAAAAAvvvTTTBBBBBvvvTTTiLLLLLLLLLLLvvvTTTCCCCCvvvTTTDDDDD

=6 =0 0 = 84 bits 0 0 0 = 22 bits =4 =4 =4 =4

=literal =literal =literal =literal

Version sum = 6 + 0 + 0 + 6 + 4 + 7 + 0 =

= 6 + 6 + 4 + 7 = 23 (CORRECT)

len=30, data=[A0016C880162017C3686B18A3D4780]

len = 120, data =

=sub-pkts bits =sub-pkt count =sub-pkt count

=1+2+8+16+64=91 =1 =5 =literal. =literal. =literal. =literal

“vvvTTTiL15LLLLLLLLLLLLvvvTTTiL11LLLLLLLLvvvTTTiL11LLLLLLLLvvvTTTAAAAAvvvTTTBBBBBvvvTTTCCCCCvvvTTTDDDDDvvv

"101000000000000101101100100010000000000101100010000000010111110000110110100001101011000110001010001111010100011110000000"

TTTEEEEE

=literal

Version sum = 5 + 1 + 3 + 7 + 6 + 5 + 2 + 2

= 31 (CORRECT)

Input-data.txt

len=1354, data

len = 5416, data = "1100001000001101010110011000000000101101001010110000101101100111000100111100011010110100110100010110000000001010110011100111111000111100000101111001101111111110001110010001111001010100011011001100000000010111111100000000010010100100111101010001001111001001110110010111001110100001101100101111001100101100001100000000010011100110111110010101010001101101000000000101100001000000000110001000110001010001110110100010100110001000000000111111000110000110001111000100001000010110000000000110100011100101111000110111011101011001101111000100100100001000110000000001000010011110011101101011000000000100001001011110001011000101001100001101111001000000001000110011110010101001110111101000000000100010001000000000111011000110000110001011000100001101110000000000000100001001100011101111000010100110001110010001000000000001000011010011100001000011001101010000110001101101100110100010010100101000000001011101001011010111110101111011101011100001001001010111111111011001010110100110111010010010100000100001010010110110011011011011111001101001000111100000111010010000000001011111011111000000000010111100010010111101001000101101011100110011101100000011100110011001011110011101101001111110001101001010011010000101000010000000001010000000100110100001111110011100010010101001010001111011100100010101011110011100000001100011000000000101101100000000000111001111100101011011011101110101000001001000100101101010100010000100111101110011110101111110101110111001000000000110010000010100000000001110011111001101111111010101011001010111001111101001010000011110011001111110101010111100011000000000101101001100000000010100110010000010100110000000001011010100000000001011110011001001111110100011101000110011100110110001110010011010011001110001000000000101111000110101010001110111001000000000101000001010010101010001111010000000000101010101100100011111100100111100100011111100100111100100110100011000100000000001100001101001001001000010100110110000111110010011000001100011000000000111000001000000000110111000101010010000011001100011000100000000000000100001001100010011111000011100010001111001000000000000010000101010001010110100011011001000010000000110000000001010010110000000001000010011011010000001001101101000011100100110110111101010000000001000110011101101101011011000110111010101101001100001100000011000000000010100011000000000011100001000000000011100111000000000011010000000000101000110000000100000000001011010000000010001111011001010000000000110100110000000000111000010000000000111000110000000000100001100000000110000001000110000000010101010001011000000001001010011100000000000011111100010110000000001101000010000000000000101001010101100000000001111001000010000000000100110101011000000000001000001010010010010111101001010110111101111111011110111001100110111101010101111001000000000001110101011001101100000101100100011101100110011100110001111000000001001000000000101000100010011101100100101111111010000000001001110010110100011001000110110100111000000011010001100011100101011000011001000101010101000000001001111000010101110011111100011011001010001100111110110001010010110110101110110010100001001110111100111000011011000110000101000000000010001001101001111100001000000000101010101011000000000001101001001001100011100100000000100010011000111001000000001111100000010101000101010000110000000001001011000000000010000110101001101010011100011010001111101100100101010111101101011001101011011100100111110011010111001110101111101000000000001001110110100110000000001110110000110000100011001011000001110100110000000001111110000111110100010000101000101001100100000000001000011011000001000110001000010100001001100010000000001011011001110100000000010111100101001100010001101100001110010010100110001000110110000110101000100001101110000000010101010011110101001101000111001100111101111110100110011110011010101000010000010010010000100001001110010101111001001111001100111110010011000010011001111011000111001101001001101011000000000101111011110011110011110101001000110001010110101001101110010100001110001000101100110101010110011001111100000000000010110100000100101010101111110010110110111010010100000110001001001111000100101101010101100111001110110110100000111010011100111110001011010011011111101010111001110011010010111110111000001100101011100000000011001100100111101110011111100000111010010101000000011001010111010101001011100100001001100000000010010101100000000010011000000000000010000100110001111110100011111111000101101000000000000001000011011000010000010000110100100010100111001011100110101000000000000011111110110011011110000001000010010100100011110100011100100101110001001110000010001100011111110010000000001100000001111100000000010100100110101110011000001001011001101011100110000010010010010110101011110001010110001100000000010010100001111011101000000000101111001000110110001100011001100111110111011110011011000000110000000000001111100101100001000101001100110010011000111001101110011110011101110111110011111110100000101101001110011101110011000110101111000100100100100000000100100000001011000000000101110000000000000100001010100011110001000101110010001101111000000000000010000101010000110000100001001001000010010010011000010000110011000000000100011110000000001100110001000100000000011011100010010001000101111110000111110000100000000011001100010101101000101101110001101101100100011011011000000111100001000000000010111001011011101000111000011000000001000001000001011110011010001111101001100001001001100100010101010101100000000000101011111001100111101001010000000"

Input hexa =

C20D59802D2B0B6713C6B4D1600ACE7E3C179BFE391E546CC017F004A4F513C9D973A1B2F32C3004E6F9546D005840188C51DA298803F1

Input binary =

1100001000001101010110011000000000101101001010110000101101100111000100111100011010110100110100010110000000001010110011100111111000111100000101111001101111111110001110010001111001010100011011001100000000010111111100000000010010100100111101010001001111001001110110010111001110100001101100101111001100101100001100000000010011100110111110010101010001101101000000000101100001000000000110001000110001010001110110100010100110001000000000111111000110000110001111000100001

I=0, L=15 (len in bits)

I=1, L=11 (count)

TID: 0:SUM(+), 1:PROD(\*), 2:MIN, 3:MAX, 5:GT, 6:LT, 7:EQ

110000100000110101 011001100000000010 11010010101*10000*10110*11001*110001001111000110101101001101

SUM PRO =4 A\_\_\_\_B\_\_\_\_C\_\_\_\_D\_\_\_\_E\_\_\_\_F\_\_\_\_G\_\_\_\_H\_\_\_\_I\_\_\_\_J\_\_\_\_

=1+4+16+32=53 =2 pkts

pkts

000101100000000010 1011001110011111100011110000010 1111001101111111110001110010001111001010100011

GT =4 A\_\_\_\_B\_\_\_\_C\_\_\_\_D\_\_\_\_E\_\_\_\_ =4 A\_\_\_\_B----C\_\_\_\_D----E\_\_\_\_F----G\_\_\_\_H----

=2 pkts

011001100000000010 111111100000000010 01010010011110101000100111 1001001110110010111001110100001

PRO EQ =4 A B C D =4 A B C D E

=2 pkts =2 pkts

101100101111001100101 100001100000000010 01110011011111001010101000 110110100000000010 110000100000000011

=4 A\_\_\_\_B\_\_\_\_C\_\_\_\_ PRO =4 A\_\_\_\_B\_\_\_\_C\_\_\_\_D\_\_\_\_ LT SUM

=2 pkts =2 pkts =3 pkts

00010001100 01010001110 11010001010 011000100000000011 11110001100 00110001111 000100001

=4 A\_\_\_\_ =4 A\_\_\_\_ =4 A\_\_\_\_ SUM =4 A\_\_\_\_ =4 A\_\_\_\_

=3 pkts